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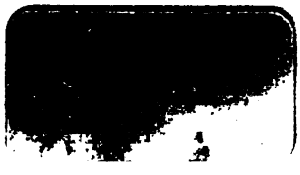

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ORIGINAL ARTICLES.

ASTHMA, ITS CAUSATION AND TREATMENT.*

J. W. HUNTER, M. D. WACO, TEXAS.

The pathology in most cases is unknown, although some light has been thrown on it recently by Alexander Haig, of London, in a work entitled "Uric Acid as a Factor in the Causation of Disease," and I shall quote freely from this author in the course of my paper.

The symptomatology and diagnosis of asthma is so well known by intelligent physicians that these will not be recited in this paper, hence we will come at once to the causation of this most perplexing disease. As a text to the causation and treatment of asthma, I will state that six months ago while in San Antonio acquainting physicians with Keasbey & Mattison's pharmaceutical preparations, especially with alkalithia, I met Dr. F. M. Hicks, of that city, who told me that spasmodic asthma, in his judgment, was due to uric acid in the blood in the majority of cases, and that he had cured two cases with alkalithia, and believed that the modus operandi was by a correction of the hyperacid condition of the blood with this powerful alkali, the formula for which is Caffeine, grains 1; Carbonate of Lithia, grains 5; Bicarbonate of Potash and Soda, each, grains 10, to each heaping teaspoonful. Dr. Hicks asked me to call the attention of the profession to this uric acid theory as a causation of asthma, and investigate what there was in it, and, as you will see further on in this paper we have struck the key-note as to the causation of this agonizing disease.

Dr. A. Haig, referred to above, in an article (*Wood's Medical and Surgical Monographs*, N. Y., Feb'y, 1890, page 359) on uric acid as a cause of disease, after quoting headache, dyspepsia, mental depression, epilepsy, gout, acute rheumatism, etc., said with regard to asthma: "Here again we have a possibly functional disorder, which, like so many I have mentioned, has long borne a somewhat indefinite relation to gout, and it has occurred to me since my investigations on uric acid has brought to my notice its action on the arterioles, that directly or indirectly it may affect the circulation in the bronchi and lungs and so produce asthma. There are also not a few points in the history and symptoms of asthma and the onset of the attacks which may be taken as pointing to its possible origin in a uric acid storm."

He says in his late work, 1894, "I have mentioned elsewhere several things which seem to make it probable that uric acid affects both the pulmonary and the systemic circulation in the same way. My interest in the matter was also greatly quickened by seeing in the *Lancet*, notice of a paper

*Read before the Texas State Medical Association, 1895.

by Dr. Yavein, of St. Petersburg, in which it appeared that large doses of citrate and carbonate of soda diminished the excretion of water from the skin and lungs. I already knew that similar doses of these alkaline salts would, by increasing uric acid in the blood, contract the vessels in the kidneys and, so long as the excess of uric acid might last, diminish the excretion of water in the urine. It seemed probable then from these considerations that uric acid not only affected, as I already knew well, the vessels of the kidneys and skin, but Dr. Yavein's results made it probable that it affected also the vessels of the lungs and diminished the output of water from them, and as soon as I was able I began some researches with a view to confirm Dr. Yavein's conclusions, which will be found on page 176 in his late work."

Now I understand from the results of Drs. Yavein and Haig, and also from results of Dr. Haig spoken of further on in his work, that the alkalies, being uric acid solvents, caused an increase of uric acid in the blood for the time being, which caused a small excretion of water by contracting the arterioles of the lungs and kidneys, and hence the asthma was produced by the contraction of the vessels of the lungs and bronchi by the uricacidemia. Dr. Haig also says from his experiments, that with the scanty urine we have a large excretion of uric acid, so that when the blood is cleared of the uric acid we have the dilation of the vessels, and hence the diuretic effect of the alkalies, so to speak. The arterial tension being relieved in the lungs and bronchi, the wheezing stops.

Asthma is usually spoken of as a paroxysmal affection, attacks coming on suddenly, from about 2 A. M. to 4 A. M., after the sufferer has gone to bed quite well.

Dr. Haig says, "Asthma has been called by Dr. Goodhart and others a paroxysmal neurosis, and they would, I suppose, probably class migraine and epilepsy in the category. But I have shown that many cases of migraine and epilepsy are entirely due to the changes which uric acid produces in the circulation of the nerve centers, and that if the blood is kept clear of this poison the attacks will practically cease to recur, and my researches leave little or no doubt in my mind that asthma represents one of the effects of uric acid on the circulation in the thorax."

Now then, Mr. Chairman, we shall see further on that clearing the blood of uric acid and keeping it clear is the only point necessary in the treatment of asthma.

As to the relation of an asthmatic attack to the excretion of uric acid. Dr. Haig says the first thing that directed his attention to this matter was the similar effects of diet, in both migraine and asthma, and that when he was a sufferer from migraine, and was on ordinary meat diet he usually had 30 or 40 attacks in a year; that when on extra meat diet for the purpose of training at Oxford, his attacks were more frequent and severe, while, now, since he takes no meat at all his headaches are practically absent altogether. He also said that his fellow student, Dr. W. E. Stevenson, suffered in the same way with asthma, while training at Cambridge. He said Dr. Stevenson also suffered at times with headaches and acute rheumatism, and his pulse was often slow and of high tension, showing the relation between these diseases and asthma. He says, "I have had slight attacks of asthma myself, and before I recognized this relationship they caused me considerable uneasiness by suggesting more serious diseases. Thus, I noticed that occasionally in the early morning before breakfast I had a feeling of heaviness behind the sternum, with a little wheezing, followed by expectoration of a little mucus. I also noticed that the pain disappeared soon after breakfast, though both the pain and the wheezing occasionally returned about 5 or 6 P. M., to disappear after dinner. Some time after this in the course of the experiment I purposely increased the excretion of uric acid and the amount passing through the blood. I found that my chest trouble was decidedly worse during this experiment, but when I reversed the process and cleared the blood of uric acid, my chest trouble suddenly and completely disappeared, and remained so for some time, until one or two meat and wine dinners with friends, increased the uric acid and brought back a morning wheeze. This opened my eyes to the nature of my trouble and I was at once able to explain its periodicity, for as I have pointed out, the largest excretion of uric acid occurs in the early morning hours before breakfast, and the next largest in what I call the

afternoon alkaline tide from 3 to 6 P. M."

I was told the other day by Mr. McKever, of McGregor, Texas, who had been a great sufferer from asthma, that his urine was always scant during an attack but so soon as the attack was over he had a diuresis, showing that the uric acid in the blood had contracted the arterioles in the kidneys as well as lungs; hence the small excretion of water and large excretion of uric acid during the attack followed by diuresis as soon as the uric acid had been cleared from the blood. This same gentleman told me that he had not had any asthma for several months, but was suffering with rheumatism. And while on this point, Dr. McHenry of San Angelo, Texas, told me recently that he had a lady patient, who suffered very much with asthma while in San Angelo, but that he had sent her to Colorado to see if a change of climate would not relieve it. It did so, but she was suffering terribly with rheumatism, showing that the uric acid had been cleared from the blood by the climate, but was deposited in the joints, and hence the rheumatism.

Dr. Haig says, "If asthma has a causation such as I am suggesting it will be made worse by anything that contracts the systemic arterioles and raises arterial tension, and it will be made better by anything that relaxes the arterioles and reduces arterial tension. It will also be made worse by anything that obstructs the free entry of air into the thorax.

"The most common cause of high arterial tension is uric acid in the blood, and this suffices to explain at once the relationship of asthma to gout and various other diseases." To sum up, then, Dr. Haig says, "Asthma is due to uric acid in the blood, and the high arterial tension it produces. When from any extraneous cause, as a chill, a blow, a local irritation or a rise of temperature, uric acid is precipitated in a joint, the blood is cleared of the excess it previously contained and the high tension and the asthma subside. An interesting case of this kind is mentioned in the *British Medical Journal*, Vol. II, 1888, p. 954, where it is told of Frederick the Great that he had a severe attack of dyspnea, followed next day by gout. It was further said that he was very gouty and had an irascible temper, this last representing the effects of uric acid on the intracranial circulation, just as the dyspnea represented its effects on the thoracic.

"The relationship of asthma to nasal irritation and obstruction may be simply that these tend to diminish the free inrush of air in inspiration, to diminish for a time the atmospheric pressure in the chest, and so increase the congestion in the bronchial area, other things, as arterial tension, remaining the same. Hay-asthma, &c. may in this way be due to the irritant action of certain small particles in producing nasal congestion and obstruction, with the concomitant action of heat in the case of hay-asthma, which increases the alkalinity of the blood and the amount of uric acid it will contain. Bad air and deficient oxygen may act by increasing the alkalinity of the blood. as I have pointed out that deficient oxidation probably produces a uricacidemia in this way, hence the headache of badly ventilated theatres, and hot, crowded rooms." (Haig)

One of the best evidences, in my judgment, that uric acid in the majority of cases, is the cause of asthma, is that iodide of potassium has until recently given us the best results of any drug as a curative treatment. Dr. Haig says: "It is interesting to find that iodide of potassium and the iodides relax the arterioles and lower arterial tension, which they are well known to do, by clearing the blood of uric acid, and I have been able to show (ch. 3.) that the fall of arterial tension and the diuresis they produce is exactly contemporaneous with a very marked fall in the excretion of uric acid, and as every drug which produces a similar fall in the excretion of uric acid produces also a similar fall of arterial tension and a diuresis, I have felt no hesitation in attributing these effects of the iodides to their action on the solubility of uric acid in the blood. The iodides then probably relieve asthma by clearing the blood of uric acid and so reducing arterial tension. These facts leave in my mind no practical doubt that asthma is generally the result of contracted arterioles and high arterial tension in the thoracic circulation."

Dr. Haig, in his chapter on Gout, says that he attributes the good results of the salicylates, alkalies, and colchicum, to their alkalinity; hence the good results with Alkalithia. This is a happy combination of our most reliable alkalies, to wit,

lithium, potassium and sodium, with the addition of that most excellent heart tonic and diuretic, caffeine, which helps to eliminate the uric acid by the kidneys and other eliminative organs, while the alkalies hold it in solution in the blood.

Just a word in regard to prophylactic treatment and I will close. Dr. Haig has shown very clearly in his work on uric acid as a cause of disease, that a meat diet, wines and malt liquors will increase uric acid in the system, hence the importance of placing the patient on a milk and vegetable diet after clearing the blood of uric acid with this powerful alkali; it matters not whether the patient has asthma, rheumatism, epilepsy, gout, or any other disease caused by uric acid. The alkalithia should be given in teaspoonful doses, three or four times a day, and kept up as long as the urine shows free uric acid by the microscope.

SOME MEDICAL NOTES OF THE SEVENTEENTH CENTURY.

A. L. BENEDICT, A. M., M. D., BUFFALO.

Through the courtesy of Judge H. W. Gunnison, the writer has in his possession a collection of "Travels through Turkey, into Persia, and the East Indies," by Monsieur John Baptista Tavernier, Baron of Aubonne, "Made English by J. P." and published in London in the year 1684. Tavernier was a shrewd jewel merchant and not too much engrossed in business to observe carefully and write interestingly. He was evidently a man of good education; classical, European, philosophical and scientific. The accuracy of such of his statements as can be compared with present knowledge of geography, race distribution, customs, natural resources of different countries, &c., and his liberal views and entire freedom from superstition are surprising to one led to believe that the man of two centuries ago was a different intellectual creature from the product of the nineteenth century.

Without attempting any systematic arrangement, it is interesting to follow the comments of this intelligent layman on medical science and art. Speaking of the fakirs of Indostan, Tavernier says, "Some of them have their hair hanging down to the middle of their Legs, and that wreathed into several parcels, as the Hair of those that have the sickness of Poland, called the Plica. Of these, I have seen some in divers places, who held one Arm, and sometimes both, above their Heads perpetually, and that had at the end of their Fingers wreathed Nails, that were longer by measure than half my little finger. Their Arms were small and lean as of hectical persons, because they took not sufficient nourishment in that forced posture, and they could not let them down to take either meat or drink, because the Nerves were retired, and the Joints were filled and dried up."——"Others stood for seven or eight days upright upon their Legs, which thereupon swell'd as big as their Thighs, without sitting or lying down, or without reposing themselves otherwise than by leaning some hours of the night upon a stretched Cord. Others stood for hours upon their Hands without wavering, the Head down and the feet upward. And so of many other sorts of postures so constrain'd and so difficult that we have no Tumbler able to imitate them." In another place, a wood-cut shows nine of these devotees in different attitudes under a banian tree. Tavernier explains the swelling of the legs thus: "There falls a humor into their legs that swells them very much." It is doubtful if any modern layman could give a better explanation of atrophy, ankylosis and passive œdema. Mention is made of fasts lasting thirty days or more, and Tavernier describes the self-hypnotising of these Fakirs into religious raptures almost exactly as do modern treatises on the same subject. "They say that after they have fasted many days, using nothing but bread and water, 'tis requisite first to keep themselves alone, retired from all company, directing the Eyes toward Heaven for awhile, then gently casting them

down again and then fixing them so as to look at one and the same time upon the tip of the nose equally, and as much on one side as the other (which is troublesome enough) and remaining firm and intent in that Posture, until such a Light do come." The author, however, does not profess to understand the mystery.

He believes that the warm climate enables the natives to bear hunger better than inhabitants of colder countries. It is generally held to-day that the hepatic troubles of European residents in India are due to their not conforming their habits of eating to the lessened demand for heat-producing food. The Fakirs "are very different from those strange men who are almost perpetually travelling up and down —that brag of secrets, and who, as the people say,—so admirably prepare mercury, that a grain or two of it taken every morning restores the body to perfect health, and so strengthens the stomach that it feeds greedily and digests with ease." Tavernier mentions the tricks of the self-same men which are often referred to at present, such as making "the Branch of a tree Blossome and bear fruit in less than an hour, hatch Eggs in their bosome in less than half-a-quarter of an hour, and bring forth such Birds as you demand, which they make fly about the chamber," but he does not credit these reports, never having witnessed such feats "and if I should chance to see any of such things,—I am always considering and seeking whether the thing may not be done by some Juggle —and I am sometimes so unhappy, or if you will, so fortunate, as to find out the cheat."

"As to Physic, they have many little Books that are rather collections of *receits* than anything else, the most ancient and chief wherefore is in verse." Tavernier seems to appreciate the difference between a scientific treatise and a collection of empirical formulæ, as the word *receit* is Italicised. "Their practice is sufficiently different from ours, and they ground themselves upon these Principles. That one sick of a Fever needs no great nourishment; That the main Remedy of sickness is Abstinence: That nothing is worse for a sick Body than Flesh-Broth, nor which corrupts sooner in the stomach of a feverish patient; That no blood is to be let out but in great and evident necessity, as when you apprehend some Translation into the Brain, or finde some considerable part, as the Chest, Liver or Kidneys enflamed. Whether this practice be better than ours, I leave to Physicians to decide; but I see that it is successful among *them*. The same practice is not peculiar to the Physicians of the Gentils, but the Mogolian and Mohumetan Doctors, that follow Avicen and Averroes, do also very strictly observe it, especially as to Meat-broths. 'Tis true that the Mogols are somewhat more prodigal of their blood than the Gentils, for in those sicknesses wherein they fear those accidents lately specified, they commonly bleed once or twice; but these are none of those petty venesections of the new invention of Goa and Paris, but they are of those plentiful ones used by the Ancients, of 18 or 20 ounces of Blood, which often come to a swounding, and frequently choak the Disease in the very beginning, as Galen saith, and as I have often experimented." Evidently, the principle of feeding fevers was general in France at this time, about 1650. It is very reasonable to suppose that both the Europeans and Indians were right, the difference in climate and in the nature of the fever requiring full diet in the one case and restriction in the other. The Mogols (i. e. the white as distinguished from the darker Caucasian inhabitants of India, perhaps of Persian descent), with the exception of bleeding to relieve uræmia and other toxæmias—a procedure which is still subjudice—understood the principles of venesection as a means of therapeusis better than their more enlightened fellows in America of two centuries later. To bleed, not as a routine but to deplete once or twice thoroughly, without continuing to exhaust the patient's strength, sums up the practical aspects of the question.

"Concerning anatomy, I may safely say that the Gentils understand nothing at all of it, and they can speak nothing of that subject but what is impertinent: Nor is it a wonder they are so ignorant, since they never open any Body of Man or Beast: they do so much abhor it, that when I open some living Kids and Sheep before my Agah, to make him understand the circulation of the Blood, and to shew him the Pecquetian vessels, through which the chyle comes at last into one of the ventricles of the heart, they trembled for fear and ran away. Yet, notwithstanding,

they affirm that there are five thousand Veins in Man, neither more nor less, as if they had well counted them all." "They hold also that 'tis the Moon from whom we receive a certain Vital Water which gathereth and disposeth itself in the Brain, descending thence as from a source into all the members for their functions."

Tavernier mentions that ships returning from India were accustomed to stop at the Dutch colony in southern Africa where wounded and sick men were often rapidly cured by the "Hosentots" who used crushed herbs as surgical dressings. He explains that the dark skin of this tribe is due to the use of oils, and cites the case of a girl taken by the Dutch in early infancy who grew up perfectly white and distinguished from her captors only by her flat nose.

Tavernier states that in most parts of India there were no physicians except those who attend the nobility, the women gathering herbs for domestic treatment. "'Tis very true that in great cities there may be one or two men that have some common Receipts, who go every morning and sit in some known places, to give their Remedies to such as enquire for them, whether they be Potions or Plaisters. First they feel their Pulses and then giving them some remedy, for which they do not demand the value of six-pence; they also at the same time mutter certain words between their teeth."

A Dutch envoy from Batavia had left a physician at Golconda at the special request of the king who suffered much from headache. The native physicians had recommended blood-letting but none could perform the operation, and the young Dutch physician won his way into favor by bleeding the king under the tongue. Before he was allowed to enter the king's presence, he was "carried to a bath and after they had undressed him and washed him, especially his hands, they annointed him with Aromatic drugs, and instead of his own European Clothes, they brought him a Robe according to the fashion of the country. The young queen and the queen-mother, understanding what he had done, were resolved to be let-blood too. But I believe it was rather out of a curiousity to see the Chirurgion than out of any necessity which they had to be let-blood. Perhaps they had never seen a stranger near at hand, in regard the women are shut up in such places that they may see but not be seen. De Lan was carried into a Chamber and an Old woman stript up his arm and washed it, but more especially his hands, which when they were dry, they rubbed again with sweet oils as before. That being done, a Curtain was drawn and the queen stretching out her arm through a hole, was let-blood; as was the queen-mother afterward in the same manner." For these services, the Doctor received about eight hundred dollars.

In this old book, which contains so much that is thoroughly modern in its conception and spirit, many other references are made to the medical practice of Asiatic countries and, incidentally, of Europe. Out of so much material, time and space allow only a few quotations

SEPARATION OF EPIPHYSIS AT THE UPPER END OF FIBULA. PUERPERAL INFILTRATION OF THE AXILLARY GLANDS.

J. B. CRANDALL, M. D., STERLING, ILLINOIS.

The fibula is formed from three centres of ossification—one for the shaft and one for each extremity. Bone begins to be deposited in the shaft at about the sixth week of fetal life; in the lower extremity during the second year; in the upper extremity at the fourth year. The lower epiphysis unites with the shaft at the 20th year, and the upper at about the 25th year. Hamilton says, "I have not found any recorded examples of separation of these epiphyses."*

The history of a case of this rare injury is as follows: The father of the child, Alderman L., of Sterling, Ill., came into my office some time early in April, 1895, and requested me to see his child. He said that a doctor had been called and

had put his child's leg up in splints for a fracture. He had no idea, neither had his wife, as to how the accident had occurred. I told him to call in the physician who reduced the fracture, and I would be present at the consultation. The physician did not appear, but sent word, so the father said, for me to examine the case in his absence. The patient was some 15 months old—a strong, robust, German child. Upon removing the splints I was unable to find any external bruises, heat, or inflammation in any part of the leg enclosed.

Upon flexing the leg upon the thigh I found that there was a separation of the epiphysis from the upper extremity of the fibula. The separation was well marked, and the upper extremity was tilted upwards. When the leg was placed in certain positions, as well as by taking hold of the epiphyseal end with one hand and the shaft of the fibula with the other, we could move the fragments in different directions, so there was no mistake in the diagnosis in this case. After approximating the ends, the limb from the foot to the upper part of the thigh was put up in a starch apparatus reinforced with light wooden basketing. This dressing was allowed to remain for some three weeks.

I had no further trouble and the ends united in a satisfactory manner.

What makes this case so interesting to me was not its magnitude, nor is it of particular interest to the profession, save for its rarity, for if such a master surgeon as the late Frank Hamilton says there was no such case on record during his life of active surgery, it certainly does not happen but once in a life time for any member of our profession to break the record.

PUERPERAL INFILTRATION OF THE AXILLARY GLANDS.

Mrs. P., aged 27 years, mother of two children, was taken with severe pains in the lower part of the abdomen some time in the early part of April, resulting in the discharge of a three and a-half to four months fœtus. The afterbirth later came away in decomposed pieces. I was called to see the case some four weeks after the premature delivery of fœtus. The history of the case I received from the patient, and as she was quite intelligent and observing it materially assisted in working out a correct diagnosis in her case. She said she was not aware that she was pregnant until the beginning of her sickness; so different was it from her other periods of incubating that the whole case was shrouded in a mystery. After the delivery of the fœtus she was unable to tell whether the larger part of the afterbirth came away or was retained in the uterus. She thought from the amount that came away later at different periods, first partially, later wholly decomposed, that the major part had beeen retained. In a week or ten days she had pain and hard areas in the right breast, followed by milk, high fever, chills and all the accompaniments of puerperal infection. Under the direction of the physician who was in attendance at the time, she applied washes to the breast. The trouble seemed to change and locate itself in her shoulder, the pectoral muscles of the chest, and the axillary space on the same side.

At my first examination, May 10th, I found the patient in a stage of nervous prostration with all the above symptoms of puerperal infection; the right arm double its normal size, the infiltration extending under the axillary space and over the pectoral muscles of the same side, also over the point of the acromium and the clavicle; a weak and rapid pulse; temperature 104°; general condition anemic.

Not being in condition for operation, I ordered a preparation of Ferri et Quini Citras with Fowlers solution; with the Elixir of Bromides and digitalis to tone up the heart's action and allay nervous symptoms.

She received some benefit from medication so that on May 15th I called in Dr. Keefer and we very carefully put the patient under the influence of chloroform, made an opening from the upper part of the axilla in the central portion, and with a probe-pointed bistoury extended it down to the pectoral muscles. The amount of pus discharged was very great. With a long pointed probe and long bladed dressing forceps I opened out, in every direction tracts leading to the main opening so as to make the exit of burrowed pus free as possible. As there was more or less venous hemorrhage we packed the wound with iodoform gauze and, later, applied moist dressings.

*Hamilton on Fracture and Dislocations, page 449.

I removed the dressing and gauze at the end of twenty-four hours and re-applied a smaller gauze tent and enclosed the arm in iodoform gauze and borated lint, applying a roller bandage from the lower third of the fore-arm to the lower part of the opening, in order to keep the pus from burrowing along the sheath of the muscles below.

The arm was dressed as often as the matter warranted, with instructions to work the discharges at each time toward the main opening by direct dilation and manipulation.

The case progressed favorably. The discharge reduced to a minimum. There is some contraction of the lower border of the biceps and contraction at the elbow joint. As the trouble is all muscular that will be restored by judicious manipulations. The patient is up and able to take out-door exercise. Her general condition is improving and we have no fears but that her convalescence and ultimate recovery is assured.

From the history, the trouble appears to have developed as a puerperal infection with hardness and tenderness in the right breast, of the sub-glandular variety, extending to the axillary region of the same side and affecting the acromial, pectoral and brachial areas, all of which might, in all probability, have been avoided if the woman had received more active and modern treatment at the proper time.

June 10th, two weeks later. Patient is cured. No contraction of muscles or other physical defects.

MEMBRANOUS CROUP.*

DOUGLASS HAYES, M. D., SHELBYVILLE, TENNESSEE.

This is a disease which, I suppose, has been discussed before every medical society in the country, still it is an important subject, and one that will always be of interest to the practitioner. It is a disease which consists of an inflammation of a peculiar character, situated in the larynx and trachea, and is termed false membranous croup, due to the fact that there is found upon the mucous surface of these organs during the prevalence of the disease a deposit resembling something of the nature of a membranous coating, which lies upon the surface somewhat closely attached, but not so closely that it cannot be removed by slight force leaving the membrane almost in its normal condition. This disease is the result of that form of inflammation diagnosed as croupous, and which may and does occur upon mucous surfaces, and is always recognized by the same character of fibroplastic exudations and membranous formations.

It is a disputed question as to whether membranous croup and laryngeal and tracheal diphtheria are not one and the same. When you remember that croupous deposits are upon the mucous membrane, are easily detached, and when left to nature are thrown off in 24 to 36 hours, at the same time producing no great constitutional disturbance; and when death results it is by the clogging up of the glottis with the detached membrane, when asphyxia occurs; and that in diphtheria the mucous deposit cannot be detached or scraped off, and when left to nature to be thrown off it is always by an ulcerative process which leaves a deep and ragged excavation which is filled in very slowly by granulation; and, further, diphtheria is always attended by a great amount of prostration, and when death results it is always from heart failure. When these differential diagnostic points are kept in view and fully considered as to their characteristic points, it is hardly reasonable to suppose that the disease could be called one and the same.

Let us review the symptoms. We notice first a hoarseness which gradually grows worse; then a cough of a peculiar barking, ringing character, caused from the dryness of the organs, and gradual narrowing of the artificial lining; again we have hurried and embarrassed respiration and restlessness is a source of general

*Read before the Tennessee State Medical Society, 1895.

discomfort; this is greatly due to the fact that the oxygenation of the blood is defective. The onset of the disease is slow and gradual, often running for three or four days before developing the severe symptoms. Spurious croup or tracheal disease, with which it may be confounded, develops rapidily and is catarrhal in character, usually with little or no fever and with little constitutional disturbance. The cough is hoarse and barking, due to the dryness of the membrane, which is characteristic of the first stage. This disease readily yields to treatment,—inhalation of warm vapor, warm bath, or even when left alone the second stage, or expulsion of mucous sets in and the case is improving long before that of membranous croup matures. Another test of membranous croup, which is sometimes mistaken and obscure, is the presence of shreds of membrane on and about the epiglottis, which may usually be detached in the first 36 or 48 hours. Spasmodic croup or laryngismus stridulous may possibly be mistaken for this disease; but after consideration of the spasmodic attack which subsides very rapidly no alteration in the voice is detected.

In membranous croup the first noticeable change is engorgement, with dryness of the surface, followed by the extravasation of a fibroplastic material and also the flapping of a piece of false membrane which may be partially detached and is located in the trachea. This membrane at times is distributed very uniformly on the surface and hardens into a rather tough coating. Nature soon commences pouring out under this false membrane a serous or sometimes a sero-plastic effusion which loosens it, and it is coughed up in consequence of the irritation produced by its presence in the trachea. If coughed up entirely, which is seldom the case, the child (for it occurs nearly always in children) recovers, but if detached partially or in quantities which cannot escape, it becomes lodged in the glottis and produces death from asphyxia—suddenly, or by long and not entire obstruction, death may come from exhaustion and imperfect oxygenation. After the separation of the first formed membranes others are apt to follow which is quite often the case, and we have several formations of the crops of false membrane; and, if the child lives its development becomes exhausted and no more are found, then the partially or wholly denuded membrane takes on repair, the inflammation gradually subsides, and the patient recovers.

CAUSES. The different forms of inflammation having such peculiar and characteristic phenomena are doubtless due to some specific agent. It is supposed that membranous croup is dependent upon a bacillus identical with that which causes croupous pneumonia and all the croupous inflammations. The poisonous toxines produced by these croupous troubles are absorbed into the system and are characteristic of the disease. Fortunately the cases are to a great extent self limited, and if not protracted by complications, usually run their course in six to eight days. It is well to watch over your case closely and to ward off any complications that may arise.

TREATMENT. When the membranes can be prevented from becoming thick and tough there is but little danger, and to prevent this, both general and local treatment must be resorted to. In former days ipecac and tartrate of antimony were often used as emetics, which at times proved beneficial as the patient was able to expel portions of the false membranes; they are seldom used now, but are, at the same time, of unquestionably value in some cases. In the first stage of membranous croup it is well to give small doses of calomel so as to clean out the alimentary canal and aid in the prevention of the formation of the *pseudo* membranes; when the membranes are formed it greatly assists nature in detaching and removing them. By some it is suggested that larger doses of calomel should be given; I believe though that smaller doses given in combination with Dover's powders prove more effectual, the beneficial powers are not confined to the cleansing out of the intestinal tract, but are very marked on the blood as well. Muriate of ammonia also possesses more beneficial power than most drugs that can be administered to the stomach. Quinine possesses the power of lessening the plasticity of the blood to some extent, and can be given per rectum. There are many other agents which possess the power of softening the pseudo-membrane when brought in direct contact with them. Trypsin, which is one of the digestive ferments secreted by the pancreas, stands at the head, with tannin,

lactic acid, papain and others. These are employed by being thrown into the glottis and trachea by the steam atomizer or spray. Extract pancreatin, sodii bicarb. and water makes a very good formula, and can be use with the steam atomizer, mop or spray. In former days it was the custom to place a vessel of slacking lime by the bed-side and so arrange it that the patient would have the vapor arising from it to strike him in the face. This was thought to, and doubtless did, possess some virtues in softening and disorganizing the pseudo-membranes, but papoid and other solvents that have greater beneficial effect can be used in place of the lime and can be applied direct to the parts with a spray or steam atomizer.

Should the physician not be called until after the formation of membranes, when dyspnœa is so great as to point to suffocation, and when the spray, vapor and other treatment prove of no benefit, then surgical treatment should be resorted to—intubation, laryngotomy or tracheotomy should be performed. Membranous croup is relieved quite often by these operations, whereas in subglottic diphtheria the cases are very seldom, if ever, cured by surgical means, and the cases so reported are more than apt to have been of a mistaken diagnosis. Tracheotomy is the treatment for pseudo-membranous croup, that is, when surgical interference is necessary, and this should not be delayed too long. If taken in time and the diagnosis of croup is correct, the operation, in a great many instances, will save the life of the patient.

THE DIGESTION OF FARINACEOUS FOODS.

CHAS. H. STOWELL, M. D.,* WASHINGTON, D. C.

A few weeks since I was very much interested in reading an article by Prof. E. H. Bartley, of Brooklyn, on the digestion of the farinaceous foods. Later this article appeared in *The Dietetic and Hygienic Gazette.* In this same journal there was an editorial which gave the latest method of treating diabetes by the use of the carbohydrates. The two articles almost side by side, were so opposed to each other that I desire to place myself on the side of the one as against the other.

In Dr. Bartley's article he takes exception to the report of the Committee of Chemists who considered the question of the effects of digested starch on the system and made their report that even in large quantities grape sugar was without effect. Dr. Bartley objects, simply by asking how they knew that what they reported was true? Had they experimented for themselves? It is the old question of the boy asking his teacher how he knew the first letter was "A"?

As this digested form of starch, glucose, enters so largely into the manufacture of candies, beer and, so Dr. Bartley says, into our cooked fruits, it becomes very important to learn what serious effects such use of these articles have on the system. The most popular beer on the market today has recently been shown to have more glucose in it than any other brand analyzed. To the presence of this glucose does Dr. Bartley attribute the ill effects of this drink, as I understand it. This is a drive at the prohibition people sure enough, as we all had previously supposed that the dangerous ingredient in beer was the alcohol, and the alcohol only. It may be necessary for us to establish new societies with this thought in mind!

Let us note particularly what the writer says about the use of sweets in fruits. He says that the cane sugar used in cooking our fruits, jellies, preserves, and fruit pies, is all changed into glucose by the boiling and the fruit acids. Yet no one scarcely need be told that the housewife only brings her pears or peaches to a boil, not subjecting them to the "prolonged boiling" necessary for this change even with an acid. He declares that the reason why some persons can eat raw apples "without stint, and without after-distress," and yet "cannot eat apple pie without distressing after-effects," is because the latter contains this digested starch. It occurs to me

*Editor of National Medical Review, etc.

there is more difference between ripe, raw apples and the average apple pie, with its historic crust! Another unfortunate illustration is where the statement is made that "Some persons can drink lemon juice and water, but are sickened by lemonade or lemon pie." As if lemonade were boiled; for it must be boiled if this change in the sugar is made. And lemon pie, it occurs to me, has something more in it than glucose, to make it indigestible.

Dr. Bartley is no friend to the sweets, for he deals the candy manufacturers a death blow. He relates "several cases of death" from the use of candy which contained glucose; yet every one who knows anything about the manufacture of candy certainly knows that the very best candy in the world contains this same glucose. One principal argument advanced against the use of articles containing glucose is that the glucose may be absorbed too quickly from the stomach. The argument is advanced that the place for the normal manufacture of this product is below the stomach, where the starch is slowly digested and absorbed. If the starch be changed into glucose before it passes through the stomach then it may be too quickly absorbed, and, thereby, "*may* prove too great a tax upon the liver," and, "the blood *may* be overcharged with dextrose." But the fear which the doctor might excite by this use of the word "may" fortunately has no foundation in fact.

All this question must now be regarded as settled by some recent work from the hands of Dr. J. H. Kellogg, of the Battle Creek Sanitarium. Dr. Kellogg has been at work a long time in his Laboratory of Hygiene, in just this line. He reports that he has made an examination of the contents of the stomach, after a test meal, in 4,875 cases to determine whether or not salivary digestion goes on in the stomach. The results were most positive. In 669 of these cases there was *complete change of all the starch;* while in only 87 cases, or 1.8 per cent, was there little if any change. Although contrary to the generally accepted theory, yet it is now evident that the action of saliva is continued while in the stomach, there converting the cooked, but undigested, starch into the form of sugar known as glucose. It is certain then, that Dr. Bartley's position will not hold. Glucose in the stomach will not cause "too great a tax on the liver," and will not "overcharge the blood" and will not appear as sugar in the urine. Nature normally digests our starchy foods in the stomach; this is the latest verdict. If she does this we need not worry that the placing of an identical, but artificial, glucose in the stomach will cause an incurable disease. Thanks to Dr. Kellogg, we may now continue to eat our candy and enjoy our sweetened fruits without fear. And those who indulge in beer may rest assured they have only the old enemy, alcohol, to consider.

But I cannot let this pass by without adding additional proof in this line. For some years there has been a growing sentiment in Germany that the treatment of diabetes was not on correct lines. Hirschfeld has recently said that diabetic coma is favored with a diet excluding the carbohydrates. Both he and Schmidt declare that we should guard against giving too much animal food. Schmidt allows all his diabetic patients only a small quantity of albumin, but gives them large quantities of starch and fat. He says this diet actually diminishes the amount of sugar in the urine. Grube impregnates the system with the carbohydrates. Williamson, of Manchester, says that ordinary homemade bread is far preferable to the prepared diabetic flours. The whole idea of the latest workers is that glucose is simply a normal product of digestion; without harm in health, and even of possible benefit in disease.

Mode of Death in Cerebral Compression.

Mr. Victor Horsley advances the opinion that cases of cerebral tumor, depressed fracture and sudden and violent concussion, especially when applied in the occipital region, die from failure of respiration and not, as is often surmised, from failure of the heart. He says that of all the lower nerve-centers which are necessary to the functions of so-called organic life, the respiratory center is the most sensitive to mechanical pressure and shocks. In cases of apparent death from intracranial pressure, artificial respiration should be immediately performed, and the skull opened freely at once: in cases of sudden shock, artificial respiration should be directly instituted, and in every case heat should be applied to the head, preferably by irrigation.—*Alienist and Neurologist.*

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SATURDAY, JULY 6, 1895.

EDITORIAL.

SUNSTROKE.

Dr. Wolfe, writing in the *Codex Medicus*, considers that in all forms of insolation, whether the attack be of the syncopal, apoplectic or thermic-fever variety, the central nervous system is always profoundly impressed.

"Both experimental and clinical evidence point strongly to the existence of a thermic centre, the function of which is to maintain the body heat at the normal standard. This is fulfilled by influences exerted upon the circulatory and the excretory organs, including in the latter the respiratory system, as well as such others as are usually embraced in this term, but more especially the skin. This centre is most probably located in the pons, since lesions here are constantly characterized by decided disturbances of temperature.

"The close anatomical relation of the pneumogastric nucleus, which contains a respiratory and circulatory centre or centres, located in the medulla, with the pons, in which we assume that the thermic centre or centres lie, need only be mentioned, while scarcely more is necessary than to call attention to the close physiological and pathological relations, so patent in all the phases of health and disease, of the functions of the lungs, heart and skin. The part played by the vaso-motor nervous apparatus, in the exercise of all the functions of the body, must, however, be also remembered, and the fact that it is by this apparatus mainly that the vital heat is regulated.

"While sufficient exposure to heat, whether it be directly to the sun's rays or in a shaded, perhaps poorly ventilated, but superheated atmosphere, may bring on heat affections in any individual, it is yet undoubtedly true that certain conditions of the system powerfully predispose to them. Foremost amongst these, the writer would rate the occurrence of a previous attack. A person who has once suffered from a pronounced attack, is not likely ever to recover fully the immunity which

he had before enjoyed. This is due to some obscure permanent changes in the condition of the cerebro-spinal axis in many cases, while in a certain contingent there undoubtedly exist grosser changes of an inflammatory nature. In the latter class, however, there is a certain degree of chronic invalidism, including attacks of an epileptoid or hysteroid nature, which does not exist in the former.

"The next predisposing factor is alcoholism in any its forms. While great care should always be exercised in hospitals, police stations and all institutions where individuals supposed to be drunk are received, so as not to overlook some more serious condition which may simulate drunkenness or co-exist with it, this caution becomes still more imperative in hot weather.

"The fatigue induced by an insufficient amount of sleep, especially when there has been also operative mental or emotional strain, reduces greatly the power of resisting the evil effects of great heat. No one is more likely to have experienced the distress of either high or low atmospheric temperatures, with a more painful sense of their power, than the average busy physician, whose vocation, without leaving him any resource for defense, is constantly compelling him to work when both tired and sleepy.

"The depression incident to exhausting diseases, even during the period of convalescence, to veneral excesses, to enervating habits of any kind, all have their etiological significance.

"In the syncopal variety of insolation, or what is often spoken of as heat prostration, with a feeble heart beat, cold extremities, pale skin, shallow respiration, and a subnormal temperature, we may find cases extreme in degree, demanding the most vigorous methods of stimulation, combined with the greatest caution. The position of a man, who would kindle from a feeble spark smouldering in the ashes, a bright and living fire, must be realized. Wild and excited blowing, and rude stirring, may extinguish the last vestige of hope, which prompt but cautious nursing might light by a few shavings, so that the kindling, and the block, and the brilliant coal might all follow in their turn, till the steady glow which could be left to the natural resources of the furnance be again established. The properties of artificial heat, mental and physical quiet, subdued light, alcoholic and other restorative drinks, ammonia, ether, digitalis, atrophin, strychnin, nitro-glycerin and caffein, should all be known, and such as are indicated, employed. In the milder cases, rest and quiet in a cool place, with a hot water bag to the feet, a sinapism to the epigastrium, and a glass of iced tea for drink, may be all-sufficient.

"In the apoplectic variety we have more or less profound coma, with stertor, and probably convulsions. The temperature is above normal, but not alarmingly high. The pulse is usually accelerated, though it may be slow. The skin may be either hotter or cooler than normal. The danger lies in the congested condition of the brain and lungs, and the surest and speediest remedy is the lancet. Blood should be drawn until the breathing becomes easier and the circulation more steady and less obstructed. The amount cannot be exactly prescribed, but must be determined by the effect. It will most like vary between eight and twenty ounces. Either hot or cold water (or ice) should be applied to the head, the low or high body temperature or heat or coldness of the skin being the guide. Warmth will probably be needed to the feet, and a hypodermatic injection of ergot (twenty minims of ergotole) may be considered an adjuvant in diminishing the congestive tendencies. A rectal injection of one drachm of potassium bromid in four fluid ounces of water can also be made use of, if the more urgent measures seem to fail.

"In the thermic fever proper, where the temperature may rise to 110° and above, no time dare be lost in cooling the body by whatever means can be commanded. Bucketfuls of cold water can be poured over the chest, abdomen and extremities, while the head can be treated to a steady stream from the mouth of a pitcher. But better still is packing ice around the body, first of all into the axillæ and around the neck. If the patient is lying on a rubber blanket, shelved up at the edges, he will almost immediately, from the heat of the body, have under him a layer of ice water, while the ice is being shoveled in handfuls over him or while the parts are being rubbed with it. The shallow respiration will become deeper, and in the course of less than half an hour the temperature can be reduced by six to eight degrees. Ice water enemata may also be used in connection with the ice externally. Here again powerful hypodermatics, as mentioned above (digitalin, strychnin, atropin and perhaps morphin), may be required, but again the writer would urge circumspection. In the excitement of the moment, the danger of overdosing is extremely great."

CORRESPONDENCE.

EDITOR MEDICAL AND SURGICAL REPORTER:

Sir:—In your issue of June 1, there appears a communication from Dr. A. T. Myers on "A Fatal Case of Typhoid Fever," in which he asks for opinions as to the correctness of his diagnosis.

After reading the article I thought that the doctor might have aided us materially in forming an opinion if he had given us an outline of diet and medicinal treatment. The only light we have on these important points is that during the first week of fever the pre-existing constipation happily yielded to the exhibition of comp. cathartic pills.

What authority, living or dead, has anyone for administering compound cathartic pills in typhoid fever? If the other treatment was in line with this, further comment is unnecessary.

What was the diet?

Was the parientkept carefully in bed?

I believe there is no disease in which fever is so obedient to the circumstances of our creation as it is in typhoid fever.

I have seen the thermometer go up 5° in the last days of typhoid fever, after a little girl had eaten of apples, candy, etc., which she had begged at the hands of a younger sister. In the first week of typhoid fever I have seen the thermomrter go up 5° and remain high for several days, when it had previously been at 99°, upon the patient getting out of bed and remaining out for a considerable time.

Where was the cold pack or cold bath on that "fatal" March 18, when the temperature began to go up from 103° to to 108°?

It would be of great interest to many of us to know the method of treatment in this case, not for the purpose of criticizing or disparaging them, but that we may be enlightened as to the exact nature of the causes producing this fatal result.

WILLIAM H. BANKS, M. D.
Mifflintown, Pa.

Guaiacol.

The use of guaiacol both externally and internally has attracted much attention of late. Dr J. M. Anders reports a number of cases in the *Therapeutic Gazette* and as a result of his work draws the following inferences:

1. Guaiacol is an efficient local sedative, as shown by its analgesic power when employed in painful affections.

2. It is more potent when administered hypodermically than when applied to the skin surface.

3. It has not, in practically afebrile conditions, produced any noticeable lowering of temperature or other unpleasant effects in his experience.

ABSTRACTS.

DANGER SIGNALS.

In an address delivered before the Southwestern Minnesota Medical Society, at its semi-annual meeting in January, 1895, the President, Dr. H. Neill, said:—Words of warning are not generally appreciated. We dislike to be told of our sins of omission and commission, or reminded of our short comings; even words of warning are generally disregarded, and are apt to fall on unhearing ears. Knowing these statements to be true, I have hesitated to inflict you with a jeremiade, but as I have the doubtful honor of being the oldest member of the Society, I shall probably receive more respectful attention than a younger man, and so have concluded to unburden myself. In making these remarks I trust that I shall not be considered an evil prophet, or as a bird of ill omen, but rather a careful vidette who observes the advance of an enemy however carefully he may approach; one who, though the enemy moves silently, still observes his presence by the dust raised by the advancing host. What danger signals are upon the horizon of the medical profession of to-day? What clouds may obscure our sun? To my mind they may be included under three heads: (1) cheap medical schools, hospitals, sanitoriums, and dispensaries; (2) advertising; and (3) specialties.

I do not wish to decry reputable medical colleges, those that have facilities and material for clinical instruction, and such as are needed, as much of the advancement of our loved profession is due to the labors of the medical teachers in these schools. These have done very much voluntarily, and have responded gracefully to the demands for a higher education, by lengthening the term of study and lectures, and by excluding the uneducated from gaining a foothold in the profession. What I do wish to deprecate is the ever increasing number of so-called medical schools that only exist for advertising purposes. There are, presumably, one hundred and fifty* medical schools of all kinds in the United States, and it is safe to state there are ten times more than are really needed, and a good many more than are in the rest of the world.

There are seventeen schools in Ohio, eleven in St Louis, two in the little town of St. Jo, and, I think two in Kansas City; there are at least seven in Iowa, if not more. It would seem as though as soon as a town gets water works and gas, a medical school is needed to enlighten the intellectual darkness. A number of men more ambitous than eminent hire an old building, elect themselves as professors, and pose as such; a hospital is started by the aid of charity, and is named St. Luke or Bethany, and the thing is done. If the town is large enough, a free dispensary is started, or perchance an out-door department is organized that gives medical treatment free to the deserving poor and at the same time advertises the profession. A catalogue is sent out with the residence of the professors, and their specialities carefully noted, also with a careful review of all the surgical work, the ostensible part of which is to attract medical students, the real, is advertising pure and simple. About the time of the creation of one of the schools, a medical paper becomes a necessity, and one appears in the interest of the professors, the surgical clinics are carefully noted and reported, and the words of wisdom of these lights are carefully reported and sent broadcast over the country. In some of these papers business announcements state that correspondents can always secure a certain number of copies gratis for distribution, and special arrangements can be made with the publishers for reprints of all original articles, hence, the whole selfish, and I might say the whole vicious circle is complete.

To show that I have not overdrawn this picture one of these detestible institutions not far from here advertises in its catalogue that for six dollars per week they will furnish board, skilled nursing and all

*The Medical Record reports 90 but I will let my statement stand, as there are many I am sure that are only known locally.

medical and surgical attendance, including operations. It is undoubtedly true that these cheap schools have induced large numbers of uneducated and ill-prepared men to enter the medical profession, thus swelling the ranks to repletion. Twenty-five years ago there was one physician to every 800 of the population, now there is one to every 500, and the ratio is rapidly increasing; surely the old law of the survival of the fittest will have to be applicable in this country, or every man will have to be his own doctor. That the spirit of these institutions is purely porcine is shown in the fact that some of the railroads controlled by general surgeons in sympathy with these hospitals and schools will not allow any operation unless it is performed in one of these aforesaid institutions. In the same category of the last named is the ever increasing number of sanitariums, and their name is "legion;" they are run under all sorts of "pathies," and generally manage to abstract a great many good paying female patients from the general practitioner. These institutions, though professedly regular, never to my knowledge recognize any one as having any rights but themselves. I strongly suspect that many of them have agents in different localities, who are paid a commission.

As far as my experience goes, the woman who goes to one of these traps is forever lost to her family physician. They all seem to industriously inculcate the idea that the general practitioner knows nothing about the diseases of females.

The rapid strides of surgery, that fascinating art that has done so much to bless humanity and make medicine respected, has brought to the surface a large class in our profession almost unknown a few years ago, called specialists. Now to the well educated and the well poised brain, that has fully studied the human system, that is acquainted with its idiosyncrasies, that has been thoroughly drilled in the pathology, etiology and symptomatology of disease, and has thoroughly fitted himself for a specialty, all honor; we need him, but unfortunately, in the last few years we have had a surfeit of young men who are imperfectly educated, and so to speak, in a one sided manner have poorly prepared themselves for special work, and whose whole thoughts run in one narrow channel, their specialty. Woe be to the unfortunate female that runs across one of these monomaniacs, for the chances are, if possible, he will spay her, and claim if criticised, like the village specialist of Alabama that had spayed over eighty women, that all the ovaries he removed showed evidence of cystic trouble. Very many of these specialists use all possible means to advertise their art; some travel from state to state reading papers with the ostensible object in view of dispelling the mists of ignorance, and at the same time to remind the members in the quietest manner possible that they will graciously condescend to treat all patients sent to them, and they generally treat their patrons with a silent and well merited contempt. There is the man who sends the reprint of his paper that recounts a surgical operation with a wonderful result, showing skill scarcely human.

In many of these papers the failures are carefully eliminated. He too is after patients to be referred to him for operation. Some of these are the appendicitis specialists who claim that every case needs the careful abdominal-surgeon and operation, a statement that every one here knows to be an untruth. Indeed it is a deliberate question, which kills the most, the disease or the ill-advised operation. Then we have the radical operator for hernia and the specialist in Alexander's operation. Already the throat specialist claims that such simple operations as tracheotomy should only be performed by a specialist, and the same is also claimed for intubation. The same will be claimed for an itoxin, if it is a success—that it should not be used by the common herd.

For this state of affairs the general practitioner is somewhat to blame. We have been lulled to sleep by that siren that has said to us that medical and surgical science in its entirety was too extensive for one mind, and then we have been reminded by more than one "goody goody" book that to be called a "saw bones" would not be conducive to our success in practice, and so we have let slip surgical cases that would have developed our faculties and their successful treatment would have been jewels in our professional crown, and allowed them to go to the so-called medical centres, to men who are no brighter, no better educated, but have more ambition and especially more gall, and who have made splendid reputations

and much wealth, and who, in their academies of medicine and surgery contemptuously remark that this came from western Minnesota or Nebraska, ignoring the "Gilly" who sent him. Thus we have floated with the tide till we are being swept out to an unknown and unnamed sea.

Brother practitioners, this state of affairs should not continue. We should cease drifting and put our hands to the oar. I speak unto you young men, because you are strong, hopeful and enthusiastic, and are able to bear the burdens laid upon you. The general practitioner of today, if he is successful, is and always has been self-reliant, and full of resources; he may at any time have to attend a case of labor that would appall a Barnes, a Bedford or a Lusk, or be called without warning or preparation to a case of surgery that requires the promptness and energy of an Erickson or Gross, and the same day have a case for diagnosis that would puzzle a Flint or a Loomis. Surely such a body of men when they wake up to the need of conservation will find it unnecessary to send away all eye, ear and abdominal cases for operation and treatment. Nor need all the bladder cases be sent away; the operations on the neck of the bladder are simple and comparatively safe, yet they are nearly all being sent away to surgeons who are neither appreciative nor thankful, and that too by men who are reasonably confident and self reliant.

Again I say this state of affairs should not continue. We must do some of this special and surgical work at home, or else our operating chairs will be for sale or rent; we must use the scalpel or have it rest in innocuous desuetude; must either use our instruments or else go back to the ante bellum days and take up the liniments, the saddle bags, the catnip and the calamus.

We must show that we are able and willing to do this special work at home, or other cases simple in their character will follow to the cheap medical school or the specialist.

Indeed this is true at the present time. You can scarcely pick up a local paper but that you will find that a Smith or a Jones has gone to Sioux City, St. Paul or Chicago to be treated for cancer or possibly for some trifling ailment, and they are not the poorest cases, but the paying ones. There is a growing sentiment amongst the laity that all surgical operations should be performed in a hospital, and so strange is this opinion that the local surgeon does not hear of a case of tumor untill he learns that it has gone to a hospital for treatment and operation. I know of two cases that recently went away for operation; one a wart on the nose, and the other a case of epithelioma of the hip, and for the reason forsooth that all surgery must be done at the hospital.

Are we not to blame for this? Have we not all sent away cases to specialists who have an abiding contempt for us? cases that had we not been lazy and timid we could have attended successfully ourselves? But it is high time we should call a halt, for if we do not as sure as the sun rises, within a few years, with the increase and ease of railroad travel, our fractures and sprains will go to the specialists or celebrated surgeons in our large towns, and who knows but our fevers and cases of bronchitis may not follow the same route? I may be an alarmist, but the symptoms point that way, and that is my prognosis.

What is the remedy I would suggest? Briefly stated it is that every practitioner should pay special attention to one certain branch of medicine or surgery. Let him take post graduate instruction in this and other branches, and then in any medical society; let a hospital be started at a convenient point. Let each man send his surgical and special cases and let the man that has made a special study of a certain specialty give his active aid and assistance to those cases that fall within his province, and of course receive pay for his services. In this way can our cases be kept at home and we get all the glory, the profession gain the respect of the people, our faculties be enlarged, and a generous rivalry exist that will brighten our minds and stimulate an honorable ambition. I do not think that this scheme is chimerical, but on the contrary believe that it is eminently practical, and so submit it in all faith as a recommendation which should not only be subject for discussion, but should receive careful and friendly consideration.—*Northwestern Lancet.*

SOCIETY REPORTS.

TENNESSEE STATE MEDICAL SOCIETY.

Louisa C. Drouillard, M. D., read a paper entitled

WOMEN IN THE PROFESSION.

[See Vol. lxxii, page 887.]

DISCUSSION.

DR. HOLTZCLAW. Mr President: I have always favored female medical education. I have, for that matter, favored the advance of the female in every walk of life. I think she is a valuable acquisition to medicine on account of her acuteness of observation. A woman will meet a stranger on the street, and in an instant will size the person up. She will walk along the street, see a well dressed female, turn to look after her, and go home and tell every article of dress the person wore. That merely illustrates their acuteness of vision. They do it intuitively and not from reasoning. And you will find that in ninety-nine times out of one hundred the intuition is correct.

Diagnosis is one of the main points in the treatment of disease, and women are so quick to observe, that it leads me to say they are a valuable acquisition to medicine. Whether I or you favor it they are advancing, and you cannot stop them by any objection. I am positively in favor of their advance; riding horseback straddle, wearing bloomers, taking athletic exercise, and, in fact, as I said this morning, I want them to do everything except nurse their children.

DR. W. A. H. COOP, Nashville. Mr. President: I just want to say I have for many years been ready to welcome the women into the medical profession, and am glad we have, to-day, at least one woman in our Society.

Dr. H. BERLIN, Chattanooga. (Called for).

Well, Mr. President and Gentlemen, it is not very easy for me to make an after-dinner speech, and I cannot undersand why you call on me.

The Doctor, who has just given us the history of the developmentof woman, has referred particularly to my country where the women have no voice. It is not claimed they have less brain, or energy, or power. The reason is because the study of medicine is limited by a preliminary education, and as long as they do not teach the same Latin in the girl's schools as in the others, they cannot get admission to study medicine; I think it will not be very long until this will be settled and they will be able to enter the universities. Another thing was the ideas produced by the girls who came from Russia. You know in my days a medical student enjoyed his life as well as his studies, and we were very delighted to think we had some nice girls from Russia to study medicine with us. But, gentlemen, it has turned out quite differently. These women were not, like the women of the United States, raised under the star spangled banner. For the purpose they came, I would like to express, at least, they mostly turn out failures, although there were exceptions. Of course these things caused the men to protest against women entering the profession of medicine, but, gentlemen, I cannot understand why women should not be allowed to study anything they choose. My friend, Holtzclaw, is in favor of the riding horseback straddle and wearing bloomers. I will even go further and let them be soldiers, too.

But, if they are to have the same advantages as the men, then they must carry the same burdens we do. I believe the day will come in the future when we will have a number of women in our profession. I believe, gentlemen, as there is an overproduction of women all over the country, they will open new fields and make themselves valuable, and *very* valuable. Go where Mohammedenism teaches that no man shall enter the secrets of the harem, and how much suffering is over there? There is where I think the women will do the most good, where she will have free entrance to the blessing and relief of these poor creatures.

DR. W. FRANK GLENN, Nashville. Mr. President: I really have nothing to say on this subject, because I am in the minority.

I would be candid to you: I am opposed to women remaining in the professions of medicine or law, wearing bloomers or riding straddle. God, I think, created woman as the beautiful, silent helpmate of man, man to bear the burden.

(The Chair ruled the gentleman out of order, upon the ground that he was not discussing the substance of the paper. Appeal taken from the decision of the Chair. The appeal sustained.)

DR. GLENN. Mr. President: You have placed a considerable damper on my argument. I was going to say no man living has a higher appreciation of woman than I have—of her sensitive nature, of the duties she has to perform in her own proper sphere in this world—and that makes me believe she is unfitted to go into the life which man leads. It is man's duty to bear the burden of making the living, and the duty of woman to bear the children and raise them. That will occupy all her time, without being doctor, lawyer or politician. I believe that in the creation of the universe the smallest atom up to the greatest mass had its function. I believe man's function is to earn the bread of the household, and woman's function is to be his helpmeet, his partner in life, and her duty is in an entirely different path from his. She is to soothe him in sorrow, providing the comforts of home, and by her gentle, kind, constant influence to make him all he should be, but not in any degree to take up the burden of life and walk out as man to man. I believe you will all admit, that whenever you see a woman enter the profession, taking the part of man, it lessens that peculiar delicate refinement which naturally is hers and which we so highly respect.

DR. DUGAN: I was interested in the paper Dr. Drouillard read. It is unnecessary for me to state to this society that I am a lover of good women, and I believe Dr. Drouillard is one of them.

In the creation of this world, when man emanated from the plastic hand of his Creator, it was found necessary that he should have a helpmate, and God made woman. If I at all understand the meaning of that it is that woman should be altogether a helpmeet to the man, and ever since creation of man and woman, we have noticed all long the line that the men have continually been running after the women. If it was not for the women that we have in our country we would be worse than any heathen nation you could imagine. And yet, admitting all this, I believe woman has her sphere in this world, and I have been very reluctant to concede to her the right to vote and to ride astraddle and all the things mentioned by others who have preceded me. I think the women in the profession might possibly do some good I have known of some few instances, and I admit, too, that the women of our country, especially of the State of Tennessee, as a class are intelligent and are capable of doing a great many things that the men may do, but their sensibilities are such that to a certain extent they will not stoop to do things that men do. Then, Mr. President, the sphere of woman, as a helpmeet to man, is, I think, at home, to assist in raising the family and bringing up the children in the way they should go, that when they get old they will not depart from it.

DR. POWELL: Well, I was opposed to this movement. It is said the time will come when seven women will lay hold of one man. But these women are going to study medicine and law, and you cannot stop it.

DR. GRISWALD: Dr. Glenn has voiced my sentiments. And yet I recognize that this is largely a matter of education. As we are more educated in this matter, we will gradually submit to it.

I feel like telling you how shocked I was the first time I ever saw a lady physician. It was in the hospital at New York. Dr. Thomas was doing a fistula operation when a lady came into the room. I thought she had gotten into the wrong room, and when she discovered it would go out. The operator, however, called her "Doctor", and she took her seat by his elbow. As I said, I was shocked. I suppose if I had been there for some time it would have seemed natural to me.

But I wish to relate an incident which occurred in Southern Tennessee. A midwife, one of the most intelligent I have seen, but not a graduate in medicine, who was, however, the daughter of a physician, was called to a case of midwifery. When the child was delivered there came a furious hemorrhage, the placenta not being well discharged. The woman was at sea, and had not another physician been near by the patient would have died. Doubtless she knew what to do, but she did not seem

to be capable of meeting the emergency. We all know women are more timid than men.

DR. CROCKETT: I desire to say just a few words touching this subject. The very thing has happened that I feared when I invited Dr. Drouillard to write a paper; but I did think, sir, that the gallantry of the medical profession of the State of Tennessee would prevent her from an assault in the position where women are already established. There is no use talking about whether she should be in the profession or not; she is there, and she is there to stay.

Now, Mr. President, I shared with these gentlemen some of the same convictions they have, but my opinion has been changed. When in the Polyclinic of New York, I was invited down by Dr. Simmons to examine a patient; I found Dr. Simmons was a woman; she had a glass eye, and I think, pardon me, one of her hips was knocked down. From then I had a prejudice to women entering medicine until I met Dr. Drouillard. Now, until the country makes some provision for the women who have nobody to provide for them, or the State of Tennessee or somebody provides for the women, also, who have a no account man to provide for, I am in favor of the women making a living in any way they see fit.

DR. HOLTZCLAW: The entrance of women into the profession is not a question of gallantry, sentiment or chivalry; it is a question of the survival of the fittest. If they show themselves fit to cope with man they will stay here. It is a question to be decided by the history of the future whether they will prove the equal of men.

DR. CROCKET: If Dr. Holtzclaw has any doubt as to whether woman is able to cope with man I would like to submit it to this body.

DR. W. A. H. COOP, Mr President and Gentlemen: If I stand here alone, with nobody else to raise a voice in defence of women in the profession, I will myself take the responsibility. I went to Chicago as bitterly prejudiced as any or all of you in this Society are, but with an association there with women, in the hospitals, clinics, and in the dead house, I have completely changed my views about it. As to the subject of what women have done for the profession, I never read a better paper than one by Dr. Putnam Sacobi, under the title of Spinal Paralysis.

DR. L. DROUILLARD, Memphis. (Close of discussion):—I want to thank those gentlemen, in the first place, that have had their views changed in regard to women. They have come out into light. There are still hopes for the rest of you, though. (Applause). It has been said that when the women share the burden with men it is all right. I would like to ask which of you would like to exchange burdens with the majority of the women you know. (Applause). Then I quite agree with our friend over here, Dr. Glenn, that woman's sphere *was* in the home, to provide the comforts, but when the great majority of the women have to provide not only the comforts of the home but the home itself there must be some avocations for the women to enter. Now, the avocations in which women have gone, have paid them little, only one-half to one-third what the men receive. She certainly has shown by her past work that she is able to do the work she is doing. Now, as to the timidity of women, I don't suppose you ever saw a man turn pale or faint in an emergency; I have seen men faint in the clinics where they were doing major operations. Of course, these things come as a matter of education. Some have asked me, "How do you come to have the nerve to do what you do?" It is not nerve, it is education. If the lady referred to who was unable to control a hemorrhage had had the proper clinical advantages, she would not have lost her head, but would have been able to cope with the case. You know, gentlemen, what the condition of the hospitals was before the women came into them; this is no secret. The conditions were published in the medical press and in the journals. What were the conditions?

I remember reading one description of Bellevue Hospital, in New York, where there was not a bar of soap for three whole days. Imagine the condition? But since women have gone into hospitals as trained nurses and physicians you know the change. We have order out of chaos, and we have cleanliness. Now, a physician in my neighborhood had an obstetrical case. He is addicted to the use of both tobacco and alcohol—and uses more alcohol than he should, especially since he is a physician. The woman had been in labor twelve hours. They telephoned for him, but he did not

come, and they sent for me. Just at the termination of labor the *physician* rushed in. I was getting along very nicely with the case. I do not know whether you would have considered him sober or not, but he was so under the influence of liquor that if I had been the husband of that woman I would have sent him out. You know you have said things about the women, and you must excuse me. You men, who are so saturated with tobacco (not you, of course, but some of the profession), how can you be as aseptic as the women?

Dr. Douglas: By copious antisepsis. Tobacco is an antiseptic. (Applause).

Dr. Drouillard: It is not aseptic. (Applause). Now, I want to thank you, gentlemen, for the courtesy you have extended to me since I have been a member of the Society———

"Eczema," C. R. Atchison, M. D., Nashville.

Discussed by Dr. W. Frank Glenn, Nashville; Dr. C. Holtzclaw, Chattanooga; Dr. H. Berlin, Chattanooga; and the discussion closed by Dr. Atchison.

"Crural Phlebitis, with Illustrative Cases in Both Sexes," W. A. H. Coop, M. D., Lawrenceburg.

Discussed by Dr. H. Berlin, Chattanooga; Dr. G. A. Bater, Chattanooga, Dr. T. K. Powell, Dancyville, and the discussion closed by the author.

"Treatment of Diseases of the Female Bladder," Richard Douglas, M. D., Nashville.

Discussed by Dr. W. K. Sheddan, Williamsport; Dr. G. B. Gillespie, Covington; Dr. T. J. Happel, Trenton; Dr. H. Berlin, Chattanooga: Dr. W. A. H. Coop, Lawrenceburg; Dr. S. W. Sanford, Union City; Dr. T. K. Powell, Dancyville; Dr. C. Holtzclaw, Chattanooga; Dr. Duggan, Dr. Omohundro, Dr. Glenn, Dr. Watkins, and the author.

Mr. T. R. Ross, M. D., read a paper entitled

THE PROTRACTED FEVERS OF WEST TENNESSEE.

DISCUSSION.

Dr. Powell: Five or six years ago I read a paper upon this disease, which has been published in the Transactions of the Tennessee State Medical Society. I have not since changed my views in reference to the disease. I said then they were simply mild cases of typhoid fever. Two years afterward there were three gentlemen appointed for the Tennessee State Medical Society. Dr. Roberts, Dr. Saunders and Dr. Morrow—and all three gentlemen afterward read papers at Memphis and all agreed it was a typhoid fever and not malaria. So far as treatment is concerned, gentlemen, I have no objection to Dr. Moss' treatment.

Dr. Roberts: Dr. Powell has brought my name before the gentlemen. I don't like to charge him with being defective in memory, but in this instance his statement is not quite in accordance with the record. There was marked divergence in the opinions of every one. I took the view as the result of observation, which I still hold, that there is no such thing as typho-malarial fever, but we do have forms of malarial fever in which we have combined intestinal irritation from various causes. I care not what form of continued fever you have, whether it is a continued fever belonging to pneumonia, or of whatever other form, if you have intestinal irritation, inflammation or ulceration, you are going to have those adpnamic symptons that render it in appearance and semblance very much like typhoid fever. And yet it is not typhoid fever; the ulcerations, if they exist, differ from those of typhoid. As I cited from a "writer in Reynolds' Practice of Medicine," they had the same fever at the time the British troops opposed Napoleon that they had at Chickahominy. The article in Reynolds' "Practice of Medicine" on continued fever cites the facts of numbers of autopsies, and these autopsies showed that the lesions, where they had gone on to ulceration, differed materially from the lesions of typhoid fever. They were not limited to the Peyer's patches and Peyer's glands, but would involve half of a patch and spread out irregularly on the adjacent mucous membrane not occupied by the Peyer's patches. The ulceration was markedly different in morphological appearance from that of typhoid fever. Those were the views I held then; those are the views I hold now. The condition is not amenable to the curative or specific action of quinia. You may render the germ innoxious, but the irritation continues, until finally the ulcer heals and

the condition subsides, for the patient passes to the beyond. The treatment I find most satisfactory is the same as I give to typhoid fever patients, being careful in the administration of drugs, trying to sustain the patient, trying to keep the ship clear of the rocks on the one side and the whirlpool on the other, trying to hold it up until the storm is over, and by those measures I have attained success. The fever Dr. Moss speaks of occurs in Middle Tennessee; it occurred repeatedly during our Civil War. There we had the dietetic conditions of poor food supply, deficient clothing and exposure, both tending to impair the function and action of the digestive tract, and the individual, being surcharged with the malarial poison, and with the febrile exacerbations he developed all, the one acting sometimes as the primary cause, and sometimes the other.

Dr. W. A. H. Coop. Mr. President: I have practiced among the so-called typho-malarial cases about eighteen years. It was probably eighteen years before typho-malarial fever, so-called, made its appearance in West Tennessee. We had, occasionally, sporadic cases of typhoid fever, so-called. They were not identical with the so-called typho-malarial fevers of to-day; that is, they were not infectious. I find also we have typho-malarial fever, so-called, in Middle Tennessee. It has very much the same symptoms, although somewhat more mild.

I differ with Dr. Moss quite a good deal in regard to the treatment. I know the Doctor is successful in the treatment of fevers, however, if I remember correctly, his cases were very prolonged, although he brought them through in the end. I think the disease is often brought about by infected drinking water.

Dr. Roberts mentioned crowd poisoning as one of the causes. Out in Lawrence County, where the purest water comes from the earth that ever flowed from any source, uncontaminated with any organic matter, and where the people in some places are sparcely settled, there could be no such thing as crowd poisoning. And yet I know where some, after drinking from a stream, would have the disease; and in that particular it had some of the appearance of typhoid fever.

I never give calomel; I never give a drastic cathartic if I suspect I have this disease in hand, and I never have hemorrhages if I get the case in the beginning. It is only where they have taken previous advice, or have taken large doses of calomel, that we have this trouble. I don't care if the patient's bowels do not move for as long as ten days. I control the high temperature with phenacetine. I don't believe the condition is identical with typhoid fever. I give quinine only at the beginning, and after the first 35 or 36 hours I give no more.

Dr. Witherspoon. Mr. Chairman: I desire to express my gratitude to Dr. Moss for his excellent paper; yet, I must to some extent disagree with him. This fever is not confined to West Tennessee by any means; it is scattered over the entire country, and is perplexing the minds, not only of the general practitioners, but also of the actual investigators of this country. Furthermore, we really do not know what this fever is. Clinically, it has many symptoms of typhoid fever, and has some elements of a malarial fever. Its strongest symptomatic condition is that of a septic form of fever. As to what the actual poison is we do not know. A doctor of Baltimore has made a great many experiments, but failed to find in the fecal discharges of these patients the bacillus typhosus of Eberth as a factor in the disease, he also has failed in the vast majority of cases to find the plasmodium of malarial fever, yet, he has been unable to isolate any bacterial cause of any other form, so far. Now, the essayist very carefully and correctly outlined some of the symptoms, which make it look like typhoid fever. I would beg to outline some symptoms that tend to make it look different from typhoid fever. What are they? In the first place, this fever begins differently from typhoid fever; we do not have the slow prodremal stage of typhoid fever. As the Doctor expressed it, we will usually find a high fever, running up to 104° or 105°. Furthermore, these patients are exceptionally liable to sick stomach; we rarely ever have that as a feature in typhoid fever. It is very rare, indeed, in my experience, that you will find the liver or spleen enlarged in this fever, where as on percussion you will invariably find them enlarged in typhoid fever.

It has also a very different feature in the tympanitic condition found in the

belly; you will find in typhoid fever, tympanites coming on later, say in the second week, usually with tenderness in the right iliac region, with all the symptoms showing that the lesion is located there; in this fever the greatest tenderness is in the epigastric and right hypochondriac region. You will find as great tympanites as you find in typhoid fever. The tongue in this fever does not assume the pointed, dry condition early in the disease that it does in typhoid fever, but it may assume a pointed red condition later on. You do not have the ochre colored stools of typhoid fever in this disease; but, if you do have a diarrhœa it is diarrhœa of irritation. You never have, in this fever, the rose colored spots, which do not always occur, but are pathognomonic when they do occur in typhoid fever. Furthermore, there is the tendency of the patients to have rigor. The throwing down of the covers will make them have a chill, and they have profuse diaphoresis on covering up. There is not, in these cases, the characteristic dry skin of a typhoid fever patient.

DR. CAIN: Time will not admit a discussion of the subject, and I will simply state a few conclusions at which I have arrived in my observation and study of the disease.

That there is a continued form of fever, which runs something of a regular course, which has some of the characteristics of malarial disease, is recognized by everyone. Yet, I have come to the conclusion that this fever, so-called typho-malarial, does not measure up with either typhoid or malarial fever; that it has not enough of the characteristics of typhoid in it to warrant us in saying it is typhoid fever, nor that it has any kinship with it; that it has not enough of the characteristics of malarial fever to warrant us in saying it is akin to malaria. And I, therefore, believe it is a specific fever, due to a specific cause as much as is typhoid fever. It is a misnomer to call it a typho-malarial fever. Now, I know all the shades of opinion entertained. Some say it is a typhoid fever modified; others, that it is a modified malarial fever; some say it is a typho-malarial fever; others say it is a septic fever, etc.; my opinion is that it is a specific fever, depending on a specific cause, the cause of which, as has been said, has not been found. Dr. Sims has said, it may be one plasmodium which causes malarial fever. We know there are a number of different forms of plasmodia found, and they produce different forms of fever. It is possible there is a peculiar plasmodium, an earth-born germ, like malarial germs, which does not produce the other peculiar symptoms of malaria, and causes this disease. It is not found the excreta of the bowels; it is not a bacillus that may be found there, nor has it been detected in the blood, but that is not a sign it is not present. I believe it is an earth-born cause, which produces blood dyscrasia, upon which the disease depends.

Treatment. The condition is not like typhoid nor malarial fever. Quinine is a most invaluable, indispensable remedy, one we cannot get along without; but it won't do in this disease, it won't do in hemorrhagic diseases, nor will it do in hematuria, yellow fever, or in diseases where there is a tendency to hemorrhage; nor where there is a tendency to blood dyscrasia. I have seen patient after patient killed by the use of quinine. I have seen them, a few years ago, come from a locality where they have been rigorously dosed with quinine, and die because they could not survive the effect of it.

DR. SANFORD: I think Dr. Moss has favored this Society with one of the best papers read this morning. I for one want to express my thanks to him. The fever under discussion is certainly a disease that is puzzling the profession of this country not a little. Dr. Powell will remember a paper read before the Tri-State Medical Society, in which he took the ground boldly that it was not a malaria, but a typhoid fever, pure and simple. My own experience is that we get no good but a great deal of harm from the administration of large doses of quinine in this disease.

DR. GILLESPIE: In the absence of a better name for the fever under discussion, I think typho-malaria a very good one for it, or probably malaria-typhoid would be a better. It is very probable the disease will be found to be typhoid fever with malaria complications, which I believe it is.

Now, as to the administration of quinine in these cases, I do not believe quinine, in anything like a reasonable quantity ever caused hemorrhage. I have

never seen a case I thought was injured by quinine, neither have I ever seen a case of malarial hematuria injured by the administration of it, but I have seen a great many cases not benefitted by it or any other remedy. I have seen a good percentage of cases during the fever, after two weeks, have a few rose colored spots, but not so many as in a typical case of typhoid fever.

I think some antiseptic remedy should be used, such as carbolic acid, iodine, eucalyptol and guaiacol are good remedies, and, if it agrees with the stomach and bowels, I use calomel and purgatives, too. Afterwards, if the bowels are constipated and I don't want to give calomel, I give the hyposulphate of soda in half dram doses every three hours until it purges the patient well. The patient always feels better afterward and is not at all depressed. I always use the cold bath and believe it should always be used to cool the fever and bring the temperature down when it goes up. The temperature seldom goes higher than 100°. If the fever is very high, use the cold baths freely. It may be necessary to use the sponge bath, or put them in a tub of cold water; any kind of tub that is large enough to put the patient in may be used. I have had cases where the temperature went to 106° and 107° and have had them live when the temperature had been for a short time at 108°, but it went down very soon after they had been well bathed, and did not rise again; and the patient did well. I never use the coal-tar derivatives. I think they cause heart failure more than any other remedy we can use.

DR. T. R. MOSS. (Close of discussion):—GENTLEMEN:—First, with regard to this disease being infectious or transmissable, I will just say it is a matter of observation with me, and it is a matter about which the people in my section of the country have little doubt, that if this fever enters a household where there are members from 15 to 30 years of age, and are in and about the room and the patient very much, the fever will attack them all. Now, whether the disease is transmitted from one to another or whether the same cause that produces it in the one produces it in the other, I do not know, but from experience I know it will go through the household when it gets in.

With the regard to intestinal hemorrhage and the fact stated by Dr. Cain that quinine should not be given in cases threatened by hemorrhage. The cases in which hemorrhage occurred had not had any quinine; and, by the way, they had been treated by the coal tar preparations and had been bathed. The fever would run up, and then some of the coal-tar preparations would be given to bring it down. If I wanted to kill a patient, I would let him have a bad attack of this fever and then keep the fever running up and down with phenacetine, or something of that kind, for four to six weeks. If they don't die then, you will have better luck with then than I have had. These remedies are not indicated except where it is impracticable to reduce a very high temperature by bathing. Then of two evils choose the lesser, and give them a dose of phenacetine, antifebrin, antipyrin, or something of that kind. You will notice, gentlemen, I did not say, give enormous doses of quinine all the time, but I said, a temperature of 101° or 102° is not very exhausting, and enough quinine should be given to hold the temperature at that. I give quinine according to the indications, and not just as a routine treatment. I give it for a reason. You have to regulate your treatment according to the indications.

With regard to the name of this disease. Did you observe I did not name it? I said, the protracted fevers of West Tennessee. I gave you the symptoms that resemble typhoid fever and those that do not resemble typhoid fever or typho-malarial fever. I am, however, of the opinion that until this country will be legislated to give the physicians more to do with dead bodies we will not be able to greatly influence these diseases. Some of the best authorities in the country depend on quinine. By the way, I heard an argument on this fever in Memphis, and I think Dr. Powell was there, lasting from 7.00 o'clock at night until midnight, some contending it was malarial and same it was typhoid; some to give quinine and some not to give it. They all agreed that where there was intestinal hemorrhage it was typhoid fever, that is, you might have the other symptoms and be mistaken about what it was, but with hemorrhage it was typhoid fever. Well, gentlemen, I have had eight or ten down in the same house at one time; two or three of them would

have intestinal hemorrhage and the others would not.

Dr. Powell: Haven't you had, in the same room, in the same house, a typical case of typhoid fever and two or three cases of this kind of fever you speak of?

Dr. Moss: I have been practicing medicine in West Tennessee 14 years, and if I have ever seen a typical case of typhoid fever I didn't know it. However, without boasting, I do think my success in the treatment of this fever has been as good as anybody's else in my section of the country.

J. A. McSwain, M. D., presented a paper entitled

EXAMINATION FOR LIFE INSURANCE.

[See Vol. lxxii, page 927.]

DISCUSSION.

Dr. J. B. Stephens, Nashville. Mr. President: I don't think there is any use discussing this paper, which I think is a first rate guide for a life insurance examiner. I watched the reading of it very closely and do not think the doctor left out anything. I will say, however, I think there is a good deal of uncertainty and fault about this urinary analysis he speaks of, which all insurance companies now require, because you can examine one's urine at one hour during the day at one specific gravity, and at another hour, another; and perhaps under peculiar circumstances at one time you might find albumen and not at another time. So I think the analysis of urine is relied upon too much by the life insurance companies. It is necessary, if albumen or sugar is present in the urine to know whether or not it is permanent.

Dr. T. R. Moss, Dyersburg. I did not catch all of the doctor's paper, and don't know whether or not he dwelt on the moral character of the applicants. I will relate this instance: I was travelling on the road from my town to Memphis with the general agent. He told me of a man who passed an absolutely perfect examination in every respect, the application was sent on, and he was rejected. Well, the general agent was indignant over it and the doctor thought he was treated badly. Finally he wrote to the company and said he thought he had a right to know why this application was rejected. They answered, and simply said, "his moral character." His moral character was all right, but he had a brother who was in the habit of being rowdy and in danger of being killed, and the company had gotten the applicant's name mixed up with his brother's. They must certainly have somebody to investigate these cases besides the doctors and agents. They find out all about their applicants in some way. How they got the information in that instance the general agent never knew. Now, when I was examining for an agency in New York City, two or three out of several applications came back rejected. I didn't know why. I had recommended the risks, and I wrote to the general agent that I had made as careful examination as I was competent to make, and was sorry they had been refused. He answered back saying, "it is no evidence, when we send applications back rejected, that you are wrong in your examination. If you were the supreme examiner you would recognize the difference." He gave me to understand there was something behind the curtain. I say this for the benefit of other examiners that may be in the room. In these cases we sometimes feel bad when there is no reason for it.

In regard to urinalysis, for instance, if a specimen of urine has specific gravity of 10.20,and you heat it with nitric acid and find no albumen or deposit, do you then make an examination for sugar in every case?

Dr. Crockett: There is nothing I could add to Dr. McSwain's paper, so far as he observed; but I apprehend there is an element enters into insurance examinations in the larger cities, which, perhaps, does not come into the experience of Dr. McSwain. I have long since ceased to have any wound when an application I may recommend comes back rejected. I have gotten over that. I well know these companies have private detectives in the larger cities. But there is another matter, to which I wish to refer. It is a mortal wound for an agent to reject an applicant. A man must not do that; he must postpone the applicant or do something like that, and not reject him outright. An agent never brought an applicant to the the examiner but he was thoroughly convinced that his family history was all right and his health good. Now, if there is any

feeling of doubt in the mind of the agent, he sees to it that no such doubt exists in the mind of the applicant. Besides, he will help the applicant clear up any peculiarities in his family history, and will, if necessary, make clear to the applicant the cause of the death of all his family. He will make it clear that there was no consumption or Bright's disease, nor anything of that kind. They all know what to do for a man if the specific gravity of his urine is a little too high. The next specimen will usually be all right. They know a glass of beer, or any of the waters will reduce the specific gravity; so one of the hardest things the physician has to do is to overcome this on the part of the agent. For instance, a man presented a specimen of urine with a specific gravity of 1,030. He came back afterward with a specimen, 1,012. I smelt it, and told the agent he had been giving the man Apollinaris water to drink. The agent hesitated, looked around, coughed, and finally admitted he had. The result was that he did not bring me another applicant for about a year.

These things, Mr. President, have all to be considered here. I do not mean that these men intend to do anything wrong; they are as honest as men in any profession.

DR. COOP. Mr. President: I have had some experience along the line Dr. Crockett has just spoken of. I became so indignant not long since, because of the dictative, insolent methods of the agent, that I wrote the medical department that I would do no more examining for him.

DR. TRAVIS: I will tell an instance which goes to show the importance of taking time to be careful in making these examinations, and not being in a hurry. Two years ago, down in Mississippi, I examined for a company an applicant measuring five feet, eight inches. The general agent was in New Orleans, and the local agent wrote back, "aren't you mistaken about the height of the gentleman?" I was rather impulsive, and without looking, answered that it was all right and the agent sent it in *eight feet and five inches.* It shows the importance of notbeing in too great hurry.

Dr. I. A. MC. SWAIN:— Chaiman. In regard to Dr. Stephen's remarks concerning urinalysis and its importance, it might be necessary to examine the urine several times before you arrive at a true opinion regarding it.

As to Dr. Crockett's remarks. I have had trouble with agents, but of course in a paper of this kind everything cannot be included. I always give the agent to understand that I will not be influenced in any way by him, and I never examine an applicant in the presence of the agent. If the agent comes in with a sort of doubtful risk and urges the applicant's examination, and that he is a good risk, I always suspect there is something wrong with the man.

Fetal Skeleton, Not Lithopedion, in Pelvis.

Emanuel (Zeitschr. f. Geburhts. u. Gynak.,) exhibited at a recent meeting of the Berlin Obstetrical Society a specimen of some importance in relation to the fate of cases of ectopic gestation when no operation is performed. The specimen was from an old woman who died of diffused melanosarcoma. The menopause had been completed 10 years before death, and at that time the pelvic tumor formed by the specimen seemed as large as it was at the patients decease. The specimen was reported by Sonnenburg last summer as a lithopedion. Further examination has proved that there was no deposit of calcareous salts, whilst the soft parts of the fetus had entirely dissapeared. Most of the bones lay loose in the cavity of the sac, whilst the vetebrae were intimately adherent to a part of the wall consisting of degenerate placental tissue. The pregnancy was tubal.

Severe Post-Partum Hemorrhage.

Two cases of severe post-partum hemorrhage are reported in the New York *Medical Journal,* which illustrate the successful method of saline arterial injections. In each case it was quite evident that death was near, and that nothing but the most heroic measures would restore consciousness. The method employed is briefly as follows: A hypodermic needle is passed into the femoral artery, and held there firmly by an assistant, or fastened there by plasters, etc. A fountain syringe, previously filled with a hot saline solution, is placed above the bed. The end of the rubber tubing is passed over the hypodermic needle, and the syringe or fountain is raised six or seven feet above the level of the bed. When the pulse returned at the wrist the needle was withdrawn. Were it not for this method, the writer says his two patients would certainly have died.

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ORIGINAL ARTICLES.

THE ANTI-TOXINE TREATMENT OF DIPHTHERIA.

W. T. HOWARD, M. D., Cleveland, O.

In an address like the present, time will not permit of a review of the rapidly accumulating literature on immunity, and we must limit ourselves to the consideration only of that portion of the interesting work done on this subject which bears directly upon the application of the blood-serum therapy to disease in the human body.

As far as animals are concerned, artificial immunity has been produced by various workers against the micro-organisms of chicken cholera (Pasteur), anthrax (Ogata and Josuhara and others), erysipelas, malignant œdema, hog cholera, typhoid fever, hemorrhagic septicæmia, vebrionic septicæmia, Asiatic cholera (Hoffkine), diphtheria (Behring and others), tetanus (Behring, Kitasato, Roux), pneumococcus infections, pyocyaneous infection, proteus infection, and infection with the bacilli coli communis, the streptococcus and the staphylococcus. Of the diseases caused by the micro-organisms above mentioned, artificial immunity has been produced in human beings by the injection of the blood serum or body fluids of animals artificially immunized against rabies, Asiatic cholera, tetanus, diphtheria and streptococcus infection.

In 1890 Behring established the fact that the blood serum of an animal immunized against diphtheria had the property not only of producing immunity for this disease in other animals, but could also cure or prevent death in other animals when injected with virulent cultures of diphtheria bacilli. Behring and Kitasato later established the same facts for tetanus and tetanus poison.

In 1891 Ehrlich produced immunity in animals against the toxalbumins of the vegetable poisons ricin and abrin. These poisons are very powerful in their action, and, as has lately been shown by Flexner, cause like the poison of diphtheria, typhoid fever and pneumonia, extensive neurosis of certain organs, especially the liver, kidney, heart, spleen and lymphatic glands.

Recently (1894) Calmitte has not only rendered animals immune against four varieties of powerful snake poisons, but has been able to cure them by the injection of the blood serum of immunized animals even after the toxic action of the poisons was marked.

Since 1890 Aronson, Behring and his collaborators, especially Ehrlich, Boehr, Kossel and Wasserman in Germany, and Roux and his pupils in Paris, have been actively engaged in the study of the production of artificial immunity against diphtheria. For the production of immunity against this disease numerous methods have been employed.

Among other methods, the injection of small amounts of sterilized bouillon cultures of virulent diphtheria bacilli; bouillon cultures, the virulence of which was artificially attenuated by heat and various chemical agents such as the trichloride of iodine, the alkaline hypochlorites, etc.; diphtheria bacilli grown in the extract of the thymus gland; and finally the inoculation of small doses of virulent diphtheria bacilli, have all been used. Behring and Roux have in their latest work, resorted entirely to the injection of the germ-free toxine of the diphtheria bacillus. Aronson prefers the injection of old cultures of virulent diphtheria bacilli. The toxine of diphtheria, discovered by Roux and Yersin in 1888, is obtained by cultivating the bacillus in plain bouillon or in bouillon to which grape sugar has been added, for from three to six or more weeks. For this purpose bacilli of a high grade of virulence are used, and a powerful toxine is thus obtained. Roux finds that if the culture is supplied with an abundance of moist air, a more virulent toxine can be obtained in a shorter time than when the older methods are employed. Not infrequently it has been found that diphtheria bacilli from average cases of human diphtheria will give a toxine of only a low degree of virulence. After the organisms have grown for the time mentioned and the toxines have been proved by injection into animals to be virulent, the diphtheria bacilli in the cultures are killed by treatment with carbolic acid 0.5 per cent., or trikresol 0.3 per cent., or with formalin. Twenty-four hours or so after the addition of one of these agents the bacilli are certainly dead. The bacilli are then separated by a simple decantation, or better by filtration through porcelain. The germ free filtrate contains the toxine. The exact strength of this toxine is ascertained by injecting it into guinea pigs. Roux's standard toxine kills a 500 gramme guinea pig in 48 hours in a dose of 0.1 cc. Before the immunizing experiments are undertaken, it is necessary to know the potency of the toxine employed. This established, Roux prefers for the first injection to lower the virulence of the toxine by the addition of one-third its volume of iodine. Behring prefers the injection of minute doses of the strong toxine, while Brieger and Wasserman use cultures grown in thymus bouillon and heated to 65° or 70°C. for 15 minutes. Aronson now uses small doses of virulent bouillon cultures to which 0.3 per cent. trikresol has been added.

In the first attempts at the production of immunity and for the production of anti-toxine, guinea pigs and rabbits were used. This was a very delicate operation, as it was difficult to keep within the range of tolerance, so sensitive are these animals to the poison. It was soon found that better and stronger toxine could be obtained from larger animals. For this purpose dogs (Aronson), sheep, goats, cows, asses, and finally horses have been used. Young and healthy horses give the best anti toxine. They withstand the toxine better, and a larger amount of blood can be drawn off without injuring the animal. Small doses are given at first and then the amount is gradually increased until at the end of from three to six months enormous doses can be given. The injections are usually given in the shoulders. After the first few injections there is usually a considerable amount of swelling and œdema, with sometimes the formation of a hard, knotty mass at the point of injection. With this there is a decided general reaction, as is shown by a rise in temperature, with loss of appetite and body weight. Often the animal, when well advanced toward immunity, will show decided prostration after injection. Roux has pointed out that the susceptibility to the toxine is increased during the later months of pregnancy. Starting with a dose of 0.5 cc. of the pure toxine and giving the injections at intervals of from 3 to 8 days, at the end of from 3 to 4 months, a dose of 250 cc. is well borne. If the blood serum is now tested on an animal inoculated with diphtheria bacilli or diphtheria toxine, preferably the later, usually its anti-toxic power is about 1: 50,000. With care andtime the immunization may be carried to a degree high enough to furnish an anti-toxine with a value of 1: 100,000, or even more. Intravenous injections of the toxine furnishes an anti-toxine of higher grade than subcutaneous injections. Roux has clearly brought out the fact that small frequently repeated doses of toxine furnish an anti-toxine of a much higher immunity grade than large doses given at longer intervals. The rapid introduction of toxine in large doses gives an anti-toxine of a

comparatively low grade. High grades of immunity are not obtained for horses under from four to six months. When the animal has reached the required degree of immunity one of the jugular veins is tapped with a trocar and blood drawn off under antiseptic precautions, to the extent of several litres. The blood is allowed to stand in vessels in an ice-chest until the serum separates. This is pipetted off, and carbolic acid or trikresol added for preservation. If carbolic acid is used, enough is added to make a 0.5 per cent. solution. Trikresol in about one-half this strength is sufficient. Roux adds camphor for preservation. It has been found that if the serum is allowed to stand some weeeks before using, it is less liable to cause disagreeable after-effects, such as urticaria, and joint and glandular swellings. The anti-toxic serum may be concentrated by desiccation *in vacuo*, and can then be preserved for a long time. Aronson has been able to separate the active anti-toxic principle by a long process. This he claims is 30 times stronger than his highest grade serum. Ehrlich first found anti-toxine in the milk of immunized animals.

COMPUTATION OF ANTITOXINE VALUES.

Behring takes as a standard an anti-toxine of which $\frac{1}{10}$ cc. will neutralize ten times the minimal lethal dose of diphtheria toxine. This he styles "normal heil serum," and 1 cc. of this is reckoned as one anti-toxine unit. The minimal lethal dose of any diphtheria toxine is the smallest dose of this toxine that will kill a 300 gramme guinea pig inside of 48 hours. In determining the value of any given anti-toxine in "heil serum" units, it is first necessary to determine the amount of this anti-toxine required to neutralize ten times the minimal lethal dose. For instance, several animals are inoculated with ten times the minimal lethal dose, the animals at the same time receiving varying amounts of the anti-toxine to be tested. The guinea pig that bears this toxine with the smallest amount of anti-toxine without serious illness, shows the true value of the given anti-toxine. Thus, if a pig is given the above amount of toxine and $\frac{1}{1000}$ cc. of anti-toxine, it has received only $\frac{1}{10}$ as much anti-toxine as would have been required had the anti-toxine been of the normal strength. Hence this special anti-toxine would be 100 times stronger than the normal "heil serum" and so would contain 100 anti-toxine units to one cubic centimeter.

The method used by Roux is based on weight. Thus, the quantity of a virulent diphtheria culture which will kill a guinea pig of a given weight is determined. Then the quantity of anti-toxine necessary to prevent serious illness in a guinea pig inoculated with the determined amount of the diphtheria culture is found. Thus if the amount of anti-toxine required to save such a guinea pig is $\frac{1}{10}$ cc. and the animal weighs 300 grammes, the strength of the anti-toxine would be said to be 1:15000. That is 1 cc. of the anti-toxine would cure 15,000 grammes of guinea pig inoculated with a fatal dose of diphtheria bacilli. The method of Behring is to be preferred as being more accurate.

Numerous explanations have been offered for the modes of action in the production of anti-toxine in the body and for the action of anti-toxine on the toxine. The weight of evidence is in favor of the supposition that the anti-toxine is formed in the body not directly from the toxine, but the body cells, stimulated by the action of the toxine, form the anti-toxine. Our conceptions concerning the production of immunity have changed very much during the last few years. The anti-toxic agent cannot be looked upon as a distinct chemical antidote against the toxine. According to Büchner's idea, the natural resistance possessed by the animal body is due to the alexines, which, according to the experiments of Kossel, Vaugh, Hankin and Büchner, are the products of the phagocytes. This resistance due to the alexines is to be looked upon as generally applying to all infections—and in no way related to artificially produced specific immunity following a given infectious process, or due to the production and action of a specific anti-toxine. Thus on account of our strong normal resistance due to our alexines, many of us, though exposed, resist diphtheria; but those recovering from diphtheria, or animals artificially rendered immune against the disease, develop a specific anti-toxic body which is capable of giving immunity to other individuals and of curing the disease. Büchner thinks that the alexines are formed by the phagocytes. He further thinks that the specific anti-toxines,

those of diphtheria, tetanus, etc., for instance, are specific bacterial products, acted on in some unknown manner by the body cells; and that the natural resistance can never approach the height of specific immunity. While the alexines are bactericidal in their action, the anti-toxines are not.

According to Roux, the blood serum of rabbits immunized against hog cholera and pneumonia, and of guinea pigs immunized against cholera, does not show any anti-toxic action, but protects against the microörganism and not against the toxine. Metschnikoff explains this by assuming that the serum stimulates the phagocytes to enclose and digest the bacteria. The blood serum of animals immune to one disease may act as a cell stimulant against another disease. Roux holds that the specific anti-toxines are formed out of the toxines in the body. The similar properties of the toxines and the anti-toxines as regards physical and chemical agents seem to favor this view. If an immunized animal is bled, the formation of anti-toxine still goes on, although no more toxine given. The manner in which the toxine is given is of importance, and the amount of anti-toxine produced is not in proportion to the amount of toxine introduced. The anti-toxine, he thinks, is not a distinct chemical antidote to the toxine, for if one part tetanus anti-toxine and 900 parts of tetanus toxine are mixed and introduced into fresh guinea pigs, two out of ten will have tetanus, so there must be some free poison in the mixture. If guinea pigs were given a preventive injection of tetanus anti-toxine and then a dose of tetanus toxine fatal for unprotected animals, none die; but if some of these animals were inoculated with the products of some other bacteria, they acquire tetanus. So there must remain free toxine. Calmeth and others have found that although venom-anti-toxine acts on venom as the tetanus anti-toxine acts on the tetanus toxine in animals, that if the two are mixed in a test tube and heated to 70° C. the mixture again becomes toxic. So it would appear that the toxines and the anti-toxines remain intact side by side. All these facts point towards the explanation that the anti-toxines act as cell stimulants against toxines. According to Roux, the action of the anti-toxines is not altogether specific, as has been held by Behring. Calmeth has found that tetanus-anti-toxine will protect animals against venom poisoning, but that the venom anti-toxine has no effect on the tetanus poison. He also found that the serum of an animal immunized against rabies would protect against snake poison. It was found that the anti-venom serum was active against abein, and that abein anti-toxine had some effect on venom. From these facts Roux thinks that all of these anti-toxines produce their effects by acting rather upon the body cells than upon each other. Vaughan thinks that the anti-toxine is formed by the body cells under the stimulation of the toxine.

Behring holds that the blood serum therapy is a specific one and that each anti-toxine is active against only one disease, and that each specific anti-toxine is produced by the living cells of the body under the influence of the toxine. Behring looks forward, however, to the making of anti-toxines outside of the body.

From the beginning of the use of anti-toxine in the treatment of diphtheria, there has been a marked lowering of the death rate. Thus the German hospital statistics, with their mortality of from 35 per cent. to 65 per cent., showed under the influence of the new remedy a mortality rate of from 11 per cent. to 25 per cent. Kossel reported 233 cases with a mortality of 23 per cent. Katz reported 128 cases in Baginsky's wards, with a mortality of 13.2 per cent. Virchow gave the treatment the weight of his authority when he reported 303 cases treated with anti-toxine with a mortality of only 13.2 per cent., and 230 cases treated without anti-toxine with a mortality of 47.8 per cent. In Roux's first series of 448 cases there was a mortality of 24.3 per cent. while at the same time the mortality from cases not treated with anti-toxine in the Hospital Trousseau was 60 per cent. Later Roux's mortality has fallen to below 10 per cent. In Vienna 100 severe cases were treated with a mortality of 24 per cent. Foster, of Washington (*Medical News*, Feb. 2, 1895) has gone to the trouble of tabulating the comparative results of diphtheria cases treated with anti-toxine and by the ordinary methods. He found that in 2740 cases—selected and unselected—collected from the literature, treated with anti-toxine, 509 died, a

mortality of 18.54 per cent.; of 4445 cases selected and unselected, and including as did the others cases upon which tracheotomy and intubation were done, not treated with anti-toxine, 2017 died, a mortality of 45.36 per cent. Probably the most interesting series of cases reported in America is that of Biggs, in which 255 cases of diphtheria were treated in the Willard Parker Hospital and in the tenement houses of New York. There were in these 255 cases 40 deaths, or a mortality of 15.69 per cent. If 15 cases in which death took place in less than twelve hours after serum was administered are deducted, the mortality was only 10.4 per cent. During the same period, according to the statistics of the Health Department, the mortality from diphtheria in New York was from 25 per cent. to 35 per cent. At the recent German Congress of Internal Medicine held at Munich, Huebner and Bagnesky of Berlin, and Wederhofer of Vienna, among others, endorse the serum therapy and note striking lowering of the mortality following its use.

The experience of the writer in the recent Ashtabula epidemic was gratifying. In 40 cases treated with anti-toxine there was a mortality of 7.5 per cent., while of 82 non-selected cases occurring during the same epidemic treated by ordinary means the mortality was 27 per cent. A series of 150 children with diphtheria treated with Roux's anti-toxine have just been published from Paris, with a mortality of 10 per cent. The experiences of individual observers might be multiplied almost indefinitely. The difference in the results obtained according to the day upon which treatment is begun, first emphasized by Kossel, is striking. It is, however, what, *a priori*, one would expect. In Kossel's 233 cases, of those treated on the first day of illness 100 per cent. recovered; on the second day 97 per cent.; on the third day 89 per cent.; on the fourth day 77 per cent.; on the fifth day 60 per cent.; on the sixth day 47 per cent.; and between the seventh and fourteenth days 51 per cent. The accumulated experience since Kossel's publication fully bears out his figures. For instance, Foster, analyzing 2740 cases, of those treated on the first day of the disease none died; on the second day the mortality was 2.83 per cent.; on the third day 9.99 per cent.; on the fourth day 20 per cent.; on the fifth day 33.33 per cent.; after the fifth day 41.38 per cent. The mortality is also higher in children under nine years than in children above this age and in adults.

CLINICAL OBSERVATIONS.

General Condition. An early and rapid improvement in the general condition of patients treated with anti-toxine has been noted by nearly all who have used the remedy. The pallor and blueness of the countenance usual with diphtheria patients quickly disappears, or if the case is treated early in the disease this symptom does not develop. Children with large masses of false membrane in their throats are often bright and playful. This improvement in the general condition, in the writer's experience, often takes place in from 12 to 24 hours. It is not uncommon to see severe and malignant cases sitting up in bed playing within from 24 to 48 hours after the beginning of the treatment.

Effects on the Circulation. The earliest and a very characteristic effect is a marked improvement of the heart's action, and of the pulse. The heart beats are slower and the sounds louder. The pulse falls rapidly in frequency, at the same time increasing in strength and volume. In the writer's experience the pulse rate would fall, even in the worst cases, 20 beats in the first twenty-four hours. In from 24 to 48 hours it was not unusual to find the pulse 80 or 90 per minute. Often within fifteen minutes after an injection a rise in the arterial tension was noted.

Respiration. No change in the respiration due to the remedy itself is described, except in young children, in whom it may be accelerated. The only effect upon the respiration is its improvement incident to the removal of mechanical obstruction due to the presence of false membranes in the air passages.

Temperature. According to Roux, if the remedy is given at the very outset, the temperature rises only slightly above the normal. In fully established cases of the disease the temperature falls in a marked manner, often succeeding the first injection. The fall is rapid, the temperature line descending almost vertically. In severe cases the temperature fall is gradual, and it may not reach the normal for several days. When the temperature remains high, in the absence of mixed infection, it is usually to be regarded as an

indication for more of the remedy. In the writer's experience the fall in the temperature was usually marked. In mild cases and in cases of medium severity, this fall was usually sudden; in severe and malignant cases it was more often gradual.

False Membrane. The changes in the local lesions are marked and striking. In the writer's cases for the first twelve to twenty-four hours there was no change in appearance of the false membrane. In severe and malignant cases, it sometimes was increased during this period. But usually its formation ceased within 24 hours after the first injection. Generally after the first 24 hours the false membrane lost its dry, opaque grayish appearance, and became moist, somewhat translucent and milky white. Slight filmy false membranes would rapidly disappear. The thick false membranes in from 24 to 48 hours begin to separate both from the surface and from the borders. It is quite characteristic to see the false membrane curling up and separating at the borders, where it joins the mucous membrane of the part. The false membrane disappears in the majority of cases by the third day. It may disappear earlier or later, as late as the seventh day in our experience.

Cervical Glands. The swelling of the cervical glands usually begins to subside before the disappearance of the false membrane. The glands, however, not infrequently remain somewhat enlarged and tender and appreciable to the touch for some time. If the glands are not already swollen at the beginning of the treatment, they do not usually enlarge.

Albuminuria. Some observers have held that diphtheria anti-toxine causes albuminuria. This is one of the most actively investigated questions now in the anti-toxine treatment of diphtheria. Much will depend upon its decision.

The question is a very complex one, for as is well known a very large proportion of severe cases of diphtheria, treated by any mode of treatment, have more or less albuminuria. According to v. Jaksch all severe cases of diphtheria have albumen in the urine. The injection of large amounts of the anti-toxine into dogs has failed to produce albuminuria. The presence of carbolic acid used to preserve the anti-toxine has been objected to as a possible cause of nephritis, but it has been found that the injection of carbolic acid in solutions of the same strength used in the Behring anti-toxine causes neither albuminuria nor nephritis in dogs. Altogether the weight of evidence points to the conclusion that diphtheria anti-toxine lessens the percentage of cases of albuminuria in diphtheria and does not cause nephritis. It will, however require the study of a large number of carefully studied cases to settle this as well as other mooted points. Roux is positive that albuminuria is less common when anti-toxine is used. Most observers hold that albuminuria existing before the anti-toxine was given is not only not augmented, but is soon lessened and disappears.

Mixed Infections. It is the opinion of all, that cases of pure diphtheria are very much more susceptible to treatment than cases of mixed infection. From the beginning it has been claimed by all that cases of mixed infection fail to show the rapid improvement under the influence of anti-toxine so striking in cases of pure diphtheria. The anti-toxine does not seem to increase the immunity against the organisms of mixed infection, (the streptococcus and staphylococcus), in the slightest degree. However, it appears to be established that cases treated early with anti-toxine are much more liable to escape mixed infection than cases coming late to treatment or treated by ordinary means. It is also established that cases of mixed infection do better under the anti-toxine treatment than under any other. The explanation here is, of course, that if the diphtheria toxine is eliminated from the case, the body is in a very much better condition to struggle against the micro-organisms causing the mixed infection, and the patient's chances are improved by that much. Clinical observation on animals on this point has been substantiated by Roux. It may be said that while anti-toxine when given early very much lessens the chances of mixed infection, any considerable lowering of mortality in cases of well established mixed infection is not to be looked for.

Croup. When anti-toxine is used, the proportion of cases of "descending croup" is very much diminished. Results show that intubation is very much better adapted to cases of laryngeal diphtheria, whether primary or secondary, than is tracheotomy. The tube is quite sufficient in the large

majority of cases to keep the air passage open until the false membrane is thrown off. Intubation is to be looked upon as the "complement of anti-toxine."

Re-infection. Several cases of recurrence of diphtheria after the use of anti-toxine have been recorded. Gaebel reports two such cases. The re-infection occurred in one case on the 27th and in the other on the 28th day. Both cases rapidly yielded to injections of anti-toxine.

Dosage. The amount of anti-toxine given must depend upon the effect produced in each individual case. The best guides are the effects upon the pulse and the false membrane. According to Ehrlich and Kossel the amount necessary is from 400 in light cases, to 1000-1500 anti-toxine units or more in severe cases. The amount in cubic centimetres will, of course, vary with the strength of the preparation. For instance, 1 cc. of the Behring No. 1 contains about 60 anti-toxine units; 1 cc. of Roux's from 50-60; 1 cc. of the Behring No. II, 100. The anti-toxine used at Ashtabula was found by Dr. Arey, in my laboratory, to have an anti-toxic value of 60 units. Janowski has found Aronson's anti-toxine about the same strength as Behring's No. II. Some of the anti-toxine obtained from the horses of the Health Department of the city of New York is stronger than Behring's No. III. Kenyoun, of Washington, has also obtained a very strong anti-toxine.

Mode of Administration. The remedy is to be injected subcutaneously with a large hypodermic syringe, of from 10-20 cc. capacity. It is of the utmost importance that the syringe should be kept sterile. Several special syringes with asbestos sponges, which will stand steam or hot dry air disinfection, have been invented, but probably the one most generally used will continue to be the old style syringe with the leather plunger. This can be quite safely sterilized with a thorough washing with a five per cent. carbolic acid solution before and after using. The skin at the point of injection should be cleansed and sterilized. It is probably not necessary to use a dressing after the injection though it can do no harm. Several parts of the body have been used for the injections, the sides of the abdomen, chest, the back and the buttocks. In the experience of the writer the buttock is at once the most accessible and least painful point. If the skin is stretched taut with the thumb and fingers of the left hand, the point of the needle may be thrust in quickly to a distance of 1 to 1.5 cm. without pain. After this is done, the needle may be carried in as deeply as necessary and in any direction.

The tissues of the soft flabby portion of the buttock are so loose and soft that an injection of the fluid gives rise to little or no pain, and it is very rapidly absorbed. If this method is pursued, even young children, if they are ignorant of what is to be done, scarcely wince. It is usual to give in severe cases 1000 anti-toxine units at once, and to repeat in 24 hours; one may, however, divide the dose and give half at first and the rest after 10 or 12 hours. Mild cases usually require only from 400 to 600 anti-toxine units. Severe and malignant cases often require from four to five thousand or more. It does not seem to make much difference whether the anti-toxine in solution is concentrated or diluted, provided the necessary number of anti-toxine units are always given. Other things being equal, however, it is better to use an anti-toxine of a high immunity grade. High temperature, rapid pulse and symptoms of toxæmia, unless clearly due to mixed infection, are always indications for more of the remedy.

Immunization. For the production of immunity small doses are sufficient. From 60 to 400-600 anti-toxine units are usually given. The size of the dose will depend upon the body weight and age. The artificial immunity thus produced lasts for a variable time, from a few days to six or more weeks. In a diphtheria infected household, everyone should receive immunizing injections. If others take the disease after a few days, the injections should be repeated. Almost invariably individuals contracting diphtheria after these injections have mild cases, which yield readily to small doses of anti-toxine.

Sequelæ. Nearly all of the dreaded sequelæ of diphtheria are either entirely absent or very mild in cases treated with anti-toxine. The proportion of cases having paralysis is very much reduced. In the 40 cases of which the writer has notes there was only one case of paralysis, while in cases in the same epidemic treated by ordinary measures paralysis was common. Heart lesions, both mural and endocardial, are very much less common in the anti-

toxine cases. In the writer's 40 cases, in only three was there cardiac irregularity following the disease. All of these cases made rapid and perfect recoveries. One case, however, in which treatment was not commenced until the sixth day, died suddenly of acute dilatation of the heart.

With the earlier disappearance of the false membrane in anti-toxine treated cases, it is probable that the diphtheria bacilli disappear earlier from the throat than in cases treated by other means. However, there is not enough evidence at hand to decide this point, and the writer's experience has not been sufficiently large to draw positive conclusions. It will take the study of a large number of cases to arrive at a definite solution of the question. Cases should be isolated until they have been proven free from diphtheria bacilli. By immunizing individuals in diphtheria infected houses, epidemics of diphtheria can be rapidly controlled. The same rules adopted in fighting small-pox with vaccination should obtain in regard to diphtheria and the preventive use of anti-toxine.

Additional Treatment. It should be remembered that although in cases coming early under treatment anti-toxine may be regarded as a specific against diphtheria, that in some cases and especially in cases treated late in the disease and in cases of mixed infection, the use of other measures, the value of which is well established, should not be neglected. It is just in these cases that the skill of the expert clinician will save life. The writer has seen such cases which in his opinion would certainly have died but for the timely use of stimulants by the attending physician. An abundance of good food is of the highest importance. It is advised to gargle or to spray the throat at short intervals with some mild non-corrosive antiseptic solution. In the opinion of the writer, copious irrigation of the affected surfaces would be more efficacious. It seems probable that as ordinarily used the local application of antiseptic agents is of little value. In many cases, certainly, they do not reach the sources of the trouble, which lie buried in the false membrane, but as the latter is thrown off under the influence of the anti-toxine their proper use is of the highest importance as the diphtheria bacilli can then be reached and acted upon. Although the bacilli may not be killed outright, their virulence is at least very much attenuated. After the disappearance of the false membrane, it is important to destroy diphtheria bacilli remaining in the throat, thereby not only lessening the chances of the patient infecting others, but very materially shortening the period of quarantine. The ideal treatment of diphtheria in the future must aim first at the destruction of the infectious agents and secondly at counteracting the poison absorbed into the system. The latter requirement is undoubtedly filled by the anti-toxine. The first is apparently accomplished by the early and frequent application of the solution recommended by Loeffler. The use of this latter agent is very promising in cases of mixed infection. Recently the streptococcus anti-toxine has been successfully used in the treatment of puerperal fever, erysipelas and other streptococcus infections. If these results are confirmed by others, a great step forward will be made in the treatment of mixed infections in diphtheria.

Remote effects of anti-toxine. From the first it has been observed that a certain proportion of cases treated with anti-toxine after from 3 to 15 or more days developed painful skin eruptions, usually urticaria and erythema multiform. The occurrence of joint and glandular swellings and severe muscular pain is met with in a certain proportion of cases. These with the skin eruptions appear to depend rather upon the preparations of anti-toxine used and the individual susceptibility of the patient than upon the size of the dose. Their occurrence is not to be looked upon as due to the presence of infectious agents in the anti-toxine but to some unknown chemical body in the horse's blood serum which is poisonous for certain human beings. Although the symptoms produced by the poison are distressing, they are not dangerous to life and disappear without treatment in a few days.

It may be said in conclusion, that in the diphtheria anti-toxine we have a specific for the diphtheria poison when applied early in the disease; and that the later the use of the remedy the greater the mortality. It should be remembered that the agent is anti-toxic and not bactericidal in its action in the sense that it kills diphtheria bacilli present in the affected part.

A CLINICAL REPORT ON THE DIPHTHERIA EPIDEMIC AT ASHTABULA.

F. D. CASE, M. D.

The following distinctive features make this report worthy of your attention:

First, It is one of the few well authenticated instances of an extensive epidemic of diphtheria due to infected milk.*

Second. It was the first epidemic of the disease in this country in which a general use was made of anti-toxine, and opportunity afforded to contrast the result with other accepted modes of treatment.

Most of the time for three years or more there have been cases of diphtheria in the 1st and 6th wards, which adjoin Lake Erie and contain a large foreign population employed on the coal and iron docks. Among these people the enforcement of quarantine restrictions is extremely difficult. The disease was of a severe type with large mortality. In these wards in 1891 there were three deaths from diphtheria; in 1892 seven deaths; in 1893 nineteen deaths, and in 1894 nineteen deaths. During these years up to September 1894 the other four wards were entirely free from the disease. In September and October, 1894, there were eight cases confined to a small section of the 4th ward. This was speedily stamped out, no cases being reported from that ward in November.

The first case ushering in the epidemic under discussion, resided on West street in the fifth ward and was taken ill December 4, 1894. December 5th there were six additional cases located on Bell street in the third ward; Center and Henry streets in the fourth ward, and Bond street in the fifth ward. December 6th, eight more cases were taken ill on Station street in the second ward; and on Center, Henry, Gary, Main, Tyler and Chestnut streets in the fourth ward. On December 8th it was estimated that there were thirty cases in the second, third, fourth and fifth wards of the city. The first death, that of the first person taken ill, a lady 30 years of age, occurred December 9th. On the 10th it was estimated that there were 40 cases in the four wards mentioned, and the Board of Health declared the disease epidemic in that part of the city south of the main line of the L. S. & M. S. railway. The public schools in these wards were ordered closed. Another death occurred to-day, that of a boy six years of age.

The simultaneous occurrence of such a large number of cases excited great alarm on the part of the public, and led to a rigid investigation on the part of the health authorities.

When attention was called to the food supply, it was found that all the cases up to December 10th were in families that procured milk from a wagon of Smith's milk line, driven by Henry Smith. An inspection of Smith's dairy showed the cows to be in good condition and free from any indication of disease. They were supplied with pure spring water and the barns and yards were in good sanitary condition. Henry Smith, driver of the wagon that supplied the infected families, was suffering from sore throat as early as December 2nd and perhaps a day or two earlier. He continued on the wagon, however, except on the 5th and 6th, when his place was taken by another man.

December 12th the Health Officer reported that since December 4th there had been 49 cases of diphtheria reported, 47 of which were in that part of the city south of the L. S. & M. S. track. Of the 47 cases, 45 were in families that used Smith's milk. By resolution of the Board of Health, Smith was prohibited from delivering milk for 15 days after December 11th. In this connection the following cases are of interest.

Mr. P., and his two sons, aged 6 and 12 years, were taken ill with diphtheria in the early morning of December 5th. Mr. P. had gone from home December 3rd, an was at this time in Binghampton, N. Y. On the evening of December 2nd they all partook freely of milk for supper. The milk was procured of Henry Smith. Other

*See Powers' report to local government Board, Universal Med. Sci., vol. 5, p. 230; also Clark's report in same.

members of the family did not use the milk and did not contract the disease.

Mrs. S. usually procured her supply of milk from another source, but on the morning of December 2nd purchased one quart from Henry Smith. December 5th and 6th she was ill in bed with sore throat but did not call a physician. On December 19th her son, aged 14, was taken ill with diphtheria, received the antitoxine and recovered. There had been no known exposure to the disease, except from the mother.

Many instances like the above could be cited. It is true that the evidence pointing to infected milk as the cause of the epidemic is entirely circumstantial, since after repeated examinations the bacillus of diphtheria was at no time found in cultures from the milk or from the throat of Henry Smith. Yet most of our opinions in clinical medicine and therapeutics like most decisions in law, are based upon circumstantial evidence. As Chief Justice Gibson has said, "You see a man discharge a gun at another; you see the flash, you hear the report, you see the person fall a lifeless corpse, and you infer from all these circumstances that there was a ball discharged from the gun which entered his body and caused his death because such is the usual and natural cause of such an effect. But you did not see the ball leave the gun, pass through the air, and enter the body of the slain; and your testimony to the fact of killing is therefore inferential, in other words circumstantial. It is possible there was no ball in the gun, and we infer that there was only because we cannot account for death on any other supposition."

It is true that many persons used milk from this same wagon who did not contract the disease. It is of course not known whether every can of milk on a given day was infected and if such was the case the inherent resisting power of many persons to infectious disease would explain the exception. The array of a large number of negative cases—these in which exposure is not followed by disease —is of little importance unless at the same time an explanation having more elements of probability is at hand. The chances of such a series of admitted coincidences not due to a common cause is too small for calculation.

In Watson's Practice of Physic, in the chapter on Continued Fevers, is the following: "A man might say, 'I was in the battle of Waterloo and saw many men around me fall down and die, and it was said they were struck by musket balls; but I know better than that for I was there all the time and so were many of my friends and we were never hit by any musket balls. Musket balls therefore could not have been the cause of the deaths we witnessed.' And if, like contagion, they were not palpable to the senses, such a person might go on to affirm that no proof existed of there being any such thing as musket balls."

Continuing our report.

December 13th, Dr. Miller of the State Board of Health, accompanied by Dr. W. T. Howard, Jr., Professor of Bacteriology in the Western Reserve University, arrived for the purpose of investigating the epidemic.

On December 14th the Board of Health authorized the Health Officer to procure from the Pasteur Institute, New York, a supply of anti-toxine. Health Officer reports to date, 64 cases in 42 families with 12 deaths.

December 16th. A quantity of antitoxine was received, and administered to three cases.

December 17th. To date 67 cases; 44 houses quarantined; 13 deaths.

December 18th. 65 cases; 47 houses quarantined; 15 deaths.

December 21st. 87 cases; 51 houses quarantined; 18 deaths.

December 22d. 90 cases to date; 20 deaths; 47 patients convalescent; 23 under treatment.

December 28th. The Board of Health declare the epidemic at an end. There are still seventeen cases under treatment.

There were 111 cases and 23 deaths during the month of December, 1894, of which 100 cases with 31 deaths were in families supplied with milk from the wagon driven by Henry Smith. The public schools reopened January 7th after a vacation of four weeks.

From the beginning of the epidemic a rigid quarantine was enforced against the sick and all coming in contact with them. The convalescent were discharged from quarantine only after four weeks detention, unless a bacteriological examination showed them to be sooner free from the disease. All infected houses were disin-

fected under the direction of an employee of the Board of Health. The adequacy of the means employed is evidenced by the fact that with over fifty houses quarantined there was no general spread of the disease, and in 24 days from the time the first patient was taken ill and 18 days after the disease was declared epidemic, the Board of Health were able to declare the epidemic at an end.

Of the total number of cases of diphtheria occuring in that section of the city in which the disease was epidemic, I have received a detailed report of 82 cases. Of these, 59 cases received the usual treatment with iron, chlorate of potash, quinine and whiskey, internally; and peroxide of hydrogen or bichloride of mercury as a spray. Of those 44 recovered and 15 died, or 25.+ per cent. mortality.

Of five cases treated with bichloride of mercury and whiskey internally and peroxide of hydrogen and lime water as a spray, four recovered and one died, or 20 per cent mortality.

Of eighteen cases treated with antitoxine, 16 recovered and two died, or 11 per cent. mortality.

In order to secure a broader field for comparison I have obtained a report of 48 additional cases occurring in the city between December 1, 1894 and April 15, 1895, making a total of 130 cases occurring in the practice of ten physicians. An analysis of these cases gives the following result:

Total number of cases of diphtheria treated, 130.

Details of treatment.	Ages of patients. under 2 years.	between 2 and 10.	over 10 years.
54 treated with serum			
50 recovered	2	26	22
4 died	1	1	2
76 treated without serum			
58 recovered	2	15	41
18 died	1	9	8

Average age of those treated with antitoxine, 12 years.

Average age of those treated without anti-toxine, 18 years.

Cases treated:

(1) Bateriologically proved to be diphtheria, - - - - - - 47
Of these, treated with anti-toxine, 29
" " without " 18

(2) Not bacteriologically determined, 83
Of these treated with serum, 25
" " without " 58

Amount of serum used to each patient varied from 12 to 113 cubic centimeters.

All the cases recovered that were treated with anti-toxine before the fourth day of illness.

The foregoing statement, while statistically correct, would be, to a certain extent, misleading without further explanation. In all the fatal cases the antitoxine treatment was begun after several days illness.

Case No. 1. A boy 12 years of age had been ill six days, was profoundly septic, and had diphtheretic laryngitis which later necessitated intubation. He lived two days after the first dose of antitoxine.

Case No. 2. A young lady, æt. 28 years, had been ill six days and had received during that time the iron treatment. Like the previous case, she was suffering from both diphtheritic laryngitis and septicæmia when she received the first injection of anti-toxine. She lived five days after the first dose.

Case No. 3. A child four months old, received the anti-toxine on the fourth day. It died of septicæmia on the evening of the third day thereafter.

Case No. 4. A child three and a half years old, suffering from diphtheritic laryngitis, received an injection of antitoxine on the fourth day after the development of croupy symptoms. Intubation was done the evening of the same day. She lived three days and died septic. This child had had sore throat with swollen glands for several days previous to the beginning of the laryngitis, but a physician was called only when suffocation was imminent.

In the opinion of the attending physicians, life was prolonged in each of the fatal cases by the use of anti-toxine. The two first cases were almost *in articulo mortis* when the remedy was injected, and yet lived two and five days, respectively, and in the latter case with good prospect of recovery.

In cases not treated with anti-toxine, heart failure, occurring about the time of, or shortly after the disappearance of the membrane, was a frequent cause of death. In one case, death in a patient 40 years of age was due to a piece of membrane being drawn into the larynx during a violent fit of coughing. In another case a violent urticaria developed on the tenth

day of illness and was followed two days later by persistant vomiting and threatened heart failure. Patient recovered.

The most frequent sequalæ in cases not treated with anti-toxine were paralytic in character. These varied in degree from slight aphonia or difficulty in deglutition to complete hemiplegia. Difficulty in locomotion, somewhat resembling the gait in ataxia, was observed in two cases. Double vision in two cases. Irregularity or intermittence of heart's action was frequent. In one case the symptoms were so alarming that the recumbent posture in bed was insisted on for a period of two months. Patient made a good recovery.. Hemiplegia occurred in the case of a young lady 18 years of age, and was accompanied by aphasia. There was no loss of sensation. Motion of upper extremity is still confined, after five months, to flexion and extension of wrist and fingers and pronation and supination of forearm.

The sequelæ following anti-toxine treatment were in general quite different in character ,but in two instances where it was not given until after the third day, mild paralytic symptoms were developed. Urticaria was reported in seven cases and was probably present in some degree in others. Rheumatism was reported in five cases and was in some instances quite severe for several days. Both urticaria and rheumatism also followed the use of anti-toxine for immunization. Slight inflammation of the joints was reported in two cases. In no instance have abscesses followed the use of anti-toxine, nor have there been other local symptoms, save mild erythema and some muscular soreness at the point of injection, nor in a single instance have the constitutional effects of the anti-toxine been such as to cause the slightest anxiety to the attending physician.

In most cases all other treatment has been omitted after the anti-toxine was given, but in a few instances whiskey was administered and antiseptic sprays used locally. There is no question in therapeutics upon which the local profession is more fully agreed, than upon the efficacy of anti-toxine in diphtheria.

All the serum used at Ashtabula was procured of the Pasteur Institute, New York.

In conclusion I would summarize our present knowledge of diphtheria as follows:—

Diphtheria is an acute specific contagious and infectious disease.

It is primarily a purely local disease, caused by an external parasite—the Klebs-Lœffler bacillus.

The condition necessary for the production of the disease is the presence of the bacilli in quantity and activity sufficient to overcome the individual's power of resistance.

Diphtheria always results, either directly or indirectly, from a previous case, but unsanitary conditions have a great influence on the propagation and virulence of the disease.

As a rule one attack confers immunity for a limited period.

The constitutional symptoms are due to the absorption of the poisonous products of the primary disease from the local lesion.

Changes occurring in the blood and tissues, and the various sequelæ, are caused by the direct or indirect action of the toxines or toxalbumins.

And finally, the discovery or rather the development of the anti-toxine treatment of diphtheria is the greatest achievement of modern therapeutics.

Shock in Castration.

W. Oakley Hermance, M. D., states that severing the cord in excision of the testicle produces any shock to the system has been denied by prominent surgeons.

To the literature upon this question I would like to add an account of a recent observation made while administering ether to a patient undergoing an operation for double castration in the clinic of Professor Steinbach at the Polyclinic Hospital.

The left cord was first clamped, then severed; at the placing of the clamp nothing was noticed, but at the moment the cord was cut the radial pulse, which up to that time had been regular, stopped, missed two beats and then proceeded as before. A little later the cord upon the right side was clamped and a well-marked convulsive movement of the right arm and side was noticed. At the moment the right cord was severed the radial pulse stopped, missed five beats, fluttered for a few seconds and then became regular as before.—*Polyclinic.*

COMPLETE RUPTURE OF THE PERINEUM.

MORDECAI PRICE, M.D., PHILADELPHIA.

There is no subject associated with gynecological surgery of more interest and importance, or more worthy of thoughtful consideration, than that of the complete rupture of the perineum. The sequence of such rupture, if not early and carefully repaired, is discomfort, indeed, prolonged misery for the patient. It means disability for the discharge of domestic duties, and for the performance of those social offices which are sources of happiness to which she is entitled and which attach to her as a member of the community. With our present light, with the advantages thick about us for knowing the subject, its mastery should not be difficult. The "all around" physician, the class from which the front rank of obstetricans and gynecologists is recruited, has the material at his command for obtaining the mastery. Much has been written upon the subject rich in instruction, much that has been and is being turned to profitable account. Our advantages give us less excuse for our mistakes.

Dr. Marian Sims and Dr. Emmet have taught the entire gynecological fraternity how to operate on these cases. They pushed their researches wherever there existed doubt and obscurity, and the profession has the results of their brilliant work.

The report of one or more cases of ruptured perineum may not be without interest to the profession, and may have some surgical value, at least in a suggestive way.

It must be remembered that we have a case with the sphincter ani torn through —the bowel laid open, the rectum and vagina forming a cloacha—with no control of the intestinal discharges when in a liquid or semi-liquid condition; a sensation of everything coming down and out; and the patient in constant fear of accident if she leaves her home or bed chamber. When we come to estimate the full value of the sphincter and the importance of its functions we cannot wonder that women in the condition that we refer to become chronic invalids.

Case I. Mrs. C., married in 1865, gave birth in one year to a large, well-developed boy; labor instrumental; complete tear of the bowel for one and one-half inches above the sphincter ani. No effort on the part of the attending physician was made to repair the rent; he kept the legs tied together for two weeks, and confined the woman to bed for two months, assuring her that recovery would be complete.

There was no union of the parts, and when she left her bed she found she had no control over her bowels. From a well-developed woman at the time of her confinement, she dwindled away to an emaciated, nervous and altogether miserable creature, wholly incapacitated for the discharge of her domestic duties.

All of this could have been remedied or avoided by a very few timely stitches.

When I saw the patient, twenty-two years after the accident, I found her in the condition stated. All I could promise was that I would do what I could for the restoration of the parts.

The sphincter could be indistinctly mapped out; the depressions at the ends of the muscle were not well marked, showing the markedly enfeebled condition of the sphincter from long disuse. I performed the Emmet operation for complete tear of the perineum, in the way I had many times seen Dr. Emmet do it in the Woman's Hospital in New York. The denudation was carried three-fourths of an inch up the vagina, above the bowel rent, and from vaginal caruncle to caruncle of the outer opening, making throughout the entire length of the wound a denuded surface of from one and one-half inches to three-fourths of an inch on either side, leaving the ends of the sphincter to be exposed as a finish to the denudation.

To do this properly a tenaculum must be buried in the centre of the dimple, or the depressed end of the sphinctor, and the tissue lifted up and cut away, then one or two thin circular strips of skin and mucous membrane surrounding this open-

ing must also be cut away to insure the coaptation of the exposed ends of the muscle. (The only difference between Dr. Emmet's way of doing the operation and that used in these cases was in my use of silk-worm-gut for sutures instead of silver wire. I have never been able to use silver wire as Dr. Emmet does. Silk-worm-gut has always given perfect satisfaction.) The stitches were placed beginning high up in the vagina, about four to the inch, in a V shape, with the apex of the V towards the external opening of the bowel; these stitches were continued down much in the shape of the spokes of a wheel, the vaginal portion of the stitches being further apart than at the bowel margin, as a larger circle of tissue had to be included. The stitches were used as supports to the sphincter sutures. These were placed from without inward, first picking up the end of the sphincter muscle, which is now deeply contracted in the depression from the denudation over the contracted ends. The end of this muscle is picked up by the tenaculum, brought up flush with the surrounding tissues, and a straight needle is inserted one-fourth of an inch behind the point of the tenaculum, passed a full inch and one-quarter along the border of the rectal tear; thence over and inserted exactly opposite on the left side of the bowel, the sphincter on that side is picked up as before and the needle passed through and out, reversely as entered on the other side. Two of these stitches are passed three-sixteenths of an inch apart, exactly in the same way, back of the sphincter.

A careful irrigation is given before the closure of the sutures, using some antiseptic solution. The closure of the stitches is then made from above downward, carefully coaptating the parts so raw surfaces only come in contact with raw surfaces, and the sutures are so drawn and shotted as to not strangulate the tissue. About two-thirds of the vaginal sutures are closed from above, then the bowel is closed with the sphincter sutures, care being taken that every particle of dirt and blood is removed. The handle of the tenaculum is placed in the bowel, suture closed with great care, so as not to strangulate the parts; this is continued upward until the last suture is closed.

Every step of this operation must be done with the most minute care and cleanliness, and the denudation of the two sides must exactly correspond, so that when the operation is finished there will be one continuous line of sutures with no raw surfaces exposed.

A bichloride douche, careful drying of the parts and a little cosmoline along the line of suture completes the operation.

This patient made a good recovery, has complete control of her bowels and in many respects is a well woman, able to be about her domestic duties and measurable to enjoy life. Certainly so many years of chronic invalidism would leave ineffaceably their stamp. She is not, and never can be the perfectly healthy woman a few stitches made in time by an experienced and competent obstetrician would have made her.

Case II. Mrs. Y., delivered when twenty-one years of age, of a large, well formed girl, the delivery was made by a drunken doctor in a country village. His condition was not recognized until after the accident, when a sober and competent man was called in, some twelve hours after; then the parts were so swollen and edematous that suturing was impossible. Her recovery was very slow, being confined to her bed and house for over three months. There were two operations for repair of the perineum by general surgeons; both were complete failures.

In this case there was a peculiar condition of the sphincter. It evidently had been torn through on the right side of the labia, leaving the two ends of the sphincter, one anterior and the other posterior to the bowel opening, and both on the left side of the bowel. The depressions at the ends of the muscles were well marked, so that I do not think the muscles had been disturbed or even found in either of the other operations. During the many years intervening between the accident and her coming under my care she was almost continually confined to her home, owing to the uncontrollable condition of her bowels. In her semi-invalid condition, she took on flesh rapidly, although otherwise her physical condition was poor.

She submitted to operation only because of a large bleeding caruncle at the mouth of the bladder which gave her a great deal of annoyance and she had to have it removed. While under ether both operations were done. Some twenty silk-worm-

gut sutures were used in the repair of the perineum.

The only difference between this case and the one above reported, was in the careful handling of the sphincter muscle, having to introduce the sphincter sutures behind the end of the sphincter wherever found. In almost all cases the sphincter is torn on the vaginal front and contracts equally and lays posterior to the bowel where it can be easily mapped out as a strong, circular, muscular band, producing at either end a depressed dimple of skin and mucous membrane. This case made a very satisfactory recovery. For a time she suffered from a slight leakage from the bowel—due to the cutting through of a suture.

At the time of the operation there was a great deal of prolapsed bowel lying over the sphincter opening. Removal was discussed and it was decided best to leave it. This prolapsed portion completely closed the bowel opening and the only way by which we could have the bowels moved was to pass a very small Sim's speculum and hold back the prolapsed bowel. After the second week it gave no further trouble.

In these cases we leave the sutures in from ten days to two weeks. If they are not shotted too tight they will be in perfect position and giving perfect support to the parts. The bowel should be kept soluble. A warm boracic acid douche should be used daily.

There is no special benefit to the profession in the report of a long list of cases, even though the cases greatly vary in the character of the injuries. There are points of likeness in the history of them all, one element rarely absent—delay. With careful, painstaking and skillful treatment about all such injuries can be relieved, and in ninety-five per cent a perfect cure results. It is from the closure of these tears immediately after labor that we must expect the greatest good to the patient. No matter how bad the laceration may be, as soon as the labor is over the woman should be placed in proper position and a tampon of gauze placed at the mouth of the womb, the vagina irrigated with a one to two thousand mercurial solution and the torn parts carefully examined. The vaginal border of the tear can be easily distinguished and with a finger in the bowel it is an easy matter for the attendant, with the aid of the nurse and those about the confinement room, to stitch the torn parts in the most complete manner, using silk-worm-gut sutures and being careful not to shot them too tight.

I have never yet had a failure in immediate closure of the perineum—either partial or complete—but I have a number of times had complete failures of cloture undertaken in from eight to twelve hours after labor. I do not regard it as good obstetrics or good surgery or even good common sense to leave a wound undressed for so many hours. The operation can be done with but little distress to the patient and without ether, while the parts are benumbed by labor, while an operation a few hours after labor compels the use of an anesthetic. There is no use talking to the patient of what you are going to do but do it promptly, and in good surgical form. In conclusion it may be said; that with the weight of the evidence of every obstetrician and surgeon of extended experience in support of the truth of the statement, in all cases where injuries to the perineum are found to exist, immediate use should be made of every means and appliance to repair the injury.

To Blow or Wash?

In these days of warfare against dirt why don't we wash our noses? Surely they get quite as dirty as our teeth, which we brush so laboriously every day. The civilized nose is, in fact, one of the dirtiest organs of the body; for, so long as civilization, which mostly means crowding, involves the breathing of dirty air, the nose, which is the organ by which the air receives its first preliminary purification, must become loaded with all sorts of nastiness. The man with a cold, who is always sneezing and slobbering with his handkerchief, is not a pleasant companion; but, for all that, by dint of much "running" his nose at least is washed, and is cleaner within than that of the fine lady who has trained herself never to use the highly-decorated little bit of lace which she carries about and calls a handkerchief; for in that nose condense and accumulate the soot, the dust, and the microbes of our far from cleanly cities.—*Brit. Med. Journ.*

HEPATIC ABSCESS.*

CHARLES CARY, M.D., AND ROSWELL PARK, M.D., BUFFALO.

DR. CARY.—The patient who is coming before you has the signs of pus which we have been unable to locate so that I have asked Dr. Park to see him with me and discover, if possible, the abscess I believe to be present. The patient has a fatty heart, which forbids the administration of an anæsthetic, and which is so weak that he passes into a state of syncope if he even attempts to sit up in bed. I have made five or six exploratory punctures into various organs without succeeding in striking pus, yet the gravity of the symptoms, his emaciation, the peculiar pallor of the skin, the continued high temperature all point to a condition of septicæmia.

The patient is a blacksmith, aged forty, and he has considered himself well until five or six weeks ago, when he was seized with a pain in the right lumbar region. His digestion has been disturbed so that he has been unable to take much nourishment and he has suffered greatly from flatulence. Before he came to the hospital he had sweats, doubtless an indication of septic disturbance. Since he has been in the hospital, he has had no sweats, but his temperature has run an irregular course between 103° and 97°. I have found friction sounds low down in the right chest, and I believe that there has been a rising of the pus so as to cause a pleurisy. This latter, however, is not purulent, for on tapping in the ninth space, only a little clear and harmless serum was withdrawn. Just below the diaphragm, I drew off what seemed to be turbid serum; still lower, coagulated blood was found and, at the level of the last rib, clear blood.

Dr. Park:—From what little information I had about this case, I agreed perfectly with Dr. Cary as to the septic nature, and advised exploratory punctures. Although these have not proved demonstrative of pus, I still believe that there is pus somewhere to explain the distinctly septic symptoms that the patient presents. Whether we can find it or not is an open question. Were the man's condition better so that he could take an anæsthetic, I should suggest a free incision. Under the circumstances, we must content ourselves with punctures.

Over the region of the liver, I notice some distended veins which I believe indicate an obstruction to the deep circulation and I will puncture at this spot.

There is evacuated from the liver a semiliquid mass of grumous matter, which looks like muddy coffee and has a horribly offensive odor. I will leave the needle in place and cut down upon what I suppose to be a abscess of the liver. For local anæsthesia, I will use cocaine. The incision is made, following the needle, in the ninth intercostal space. About 50 c.c. of pus has gushed forth immediately and the flow continues now that I have inserted a drainage tube. In less than three minutes, 200 c.c. have been evacuated. On account of the weak state of the patient, we will content ourselves with getting rid of the septic elements that will evacuate themselves spontaneously and will not irrigate.

*Clinic at the Buffalo General Hospital.

Vaselin in Erysipelas.

H. Koster, of the Sahlgren Hospital, has made a study of the relative value of the various common methods of treatment of erysipelas. The duration of the fever appeared to be the same when vaselin was used as when Goulard's water, iodine applications, ichthyol and vaselin, and sublimated lanolin were employed. None of these remedies were capable of checking the process with certainty, and in exceptional cases this spread over almost the whole surface of the body. The complications, especially the phlegmonous process, did not appear to be greater after the use of vaselin than when other measures were used. Consequently the author regards vaselin as quite as efficacious as the other well-known topical remedies, and preferable because inoffensive, cheap, without disagreeable odor, and producing no irritation.—*Upsala läkareforenings forhandlingar.*

REMOVAL OF A TUMOR FROM THE NASO-PHARYNGEAL ARCH.

A. O. STIMPSON, M. D., THOMPSON, PA.

Mrs. D. J. H., a young married woman aged 29 years, about a year ago consulted me for what she considered an ordinary case of nasal catarrh, accompanied with quite a little difficulty in swallowing even bland liquids. At the time that she consulted with me in regard to her troubles she was visiting at the home of one of my patients, consequently I only made a cursory examination of her throat and nose, and all that I could then discover was a congested condition of the posterior naso-pharyngeal space with an errosive condition of the mucous membrane. I made an appointment with her to call at my office at a future day and have a thorough examination made of her case. At the day and hour appointed, with the aid of an improvised reflecting light I was able to thoroughly inspect the back part of the throat, and after spraying it with an etheral solution of cocaine (Hydrochlorate) I discovered a smooth red growth the size of a bean of irregular contour, completely blocking up the left nasal-fossa. This growth was removed after some little difficulty by seizing with a long pair of dressing forceps and then amputating the pedicle, after having drawn it out as much as could be allowed without a rupture of the membrane. The pedicle was about one-eighth of an inch thick. After the removal of the tumor the stump was cauterized with a solid stick of nitrate of silver, and the operation was complete. No hemorrhage followed the operation.

ANTITOXIN TREATMENT OF DIPHTHERIA.

Fischer (*Medical Record*) states that of 225 cases of diphtheria, in which he has employed the antitoxin treatment, thirty-five have died. Twenty-two cases were under 5 years of age; sixteen of the latter were under 3 years. His mortality has, therefore, been equivalent to 15⅝ per. cent. This high death-rate he attributes to the fact that the antitoxin was used in a great many cases which were regarded as hopeless.

The contraindications for the usage of antitoxin, according to the author, are; (1) Cases of mixed infection; cases of a scarlet fever complicating diphtheria; cases of measles complicating diphtheria; cases of chicken-pox complicating diphtheria, and so on. (2) Cases that are moribund. (3) Cases that appear to be true septicemia, where we have rather a result of the diphtheria than a real diphtheria to contend with. (4) Cases which show a distinct evidence of casts and large quantities of albumen should not be injected with antitoxin.

In the application of the remedy the following suggestions are offered: (1) To apply the remedy as soon or as early in the disease as possible. (2) To inject a sufficient quantity. (3) To remember that the remedy is absolutely harmless. (4) That it can be used for prophylactic purposes by injecting the one-tenth part necessary for healing an acute case of diphtheria. (5) That the use of antitoxin does not render local antisepsis, the use of stimulants, and careful hygienic regulations unnecessary.

The technique of the injection consists: (1) A careful sterilization of the skin at the seat of injection,—the interscapular space or the pectoralis region. Sterilization consists in washing the skin with soap and warm water, then sponging with a 1 to 200 sublimate solution. (2) The hands of the physician must be carefully cleaned and rendered aseptic. (3) The syringe should be completely sterilized by boiling fifteen minutes in a soda solution. The needle should be dipped in alcohol, followed by a 2-per-cent. solution of carbolic acid. (4) It is necessary to inject slowly; at the same time to have the proper quantity of serum drawn into the barrel of the syringe, so that no time is lost. The needle should be pushed into the deep cellular tissue, at least two inches in a semi-horizontal position. (5) Massage of the fluid injected should be practised. Finally, it is well to apply a very small pledget of absorbent cotton over the injected spot. The injected spot can also be sealed by dropping collodion over it.

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SATURDAY, JULY 13, 1895.

EDITORIAL.

DEGENERATE OR UNREGENERATE.

The prime function of the pulpit is to convince mankind that it is unregenerate and to urge upon it simple means for the prevention and cure of this condition. The methods proposed are at once simple and sensible, and where truely applied have invariably proved efficient. But in spite of the persistent and fruitful efforts of the pulpit to regenerate the human race, so much remains undone that it appears to have become necessary for medical science to take a hand in the matter and to aid or hinder, as the case may prove, the work of the pulpit by demonstrating that the unregenerate is, as a matter of fact, not simply unregenerated but actually degenerated. To such as are qualified to comprehend the *scientific* value of a fact in science, and to deal with it in a scientific manner, the demonstration will be of value, but to the general this theory of degeneracy is only another twist in the meandering curve of can't, if one may so call a diagramatic illustration of the methods of logic pursued by those who seek to prove the total irresponsibility of any wrong-doer—"because he 'can't' help himself."

Without entering into a discussion of this phase of the subject it may be said in general terms that unregeneracy is much more prevalent than degeneracy, and that a man may be both unregenerate and degenerate, or may be either one without being the other. Certainly the pulpit has not exhausted its field of labor and need not retire from business.

Recently Max Nordau's work on "Degeneration" has awakened considerable popular interest and not a little discussion in intellectual circles outside of the medical profession. Its pseudo scientific character and somewhat novel attempt to demonstrate the stigmata of degeneration to be present in some of the most prominent writers and artists of this generation has brought to the author considerable prominence, some approval, and much obloquy.

This last is not to be wondered at as many of the living lights of literature and art have some natural compunctions against wearing shoes made over Dr. Nordau's last.

Dr. Nordau's work, undoubtedly has some genuine scientific value even if, measured by his own standards, the author is himself degenerate. There is such a thing as degeneration. What it is may well be answered by quoting in full the definition given by Dr. Dana in a recent article in the *Forum*:—

"Degeneration is a variation from the average type of the family or race, this variation containing with it a tendency to sterility and extinction of the family. Now, the average or normal type is necessarily a healthy one, otherwise the family and race would die out because, as physiology has shown, only healthy individuals can long propagate the race. Hence Morel's definition of degeneration very properly says that it is "a diseased variation from the primitive type," but this modification is very necessary, since most variations partake of abnormality. Dr. Nordau and other writers speak of degenerates as diseased persons. I would, however, use the milder word *disordered*, or abnormal. In disease there is, speaking generally, a vicious something added to the system, which poisons and perverts it, but in a "disorder" there may be only a disarrangement or disproportion of parts. The bricks and beams of the structure are sound but they are not put together in their proper relation, and instability results. In degenerates there is always some of this disorder or abnormality. Degenerates vary in degree. The lowest forms includes idiocy and imbecility; they are called *debiles*. The next higher group form the *inferior* degenerates, who are simply weak-minded. The highest group are the *superior* or *intelligent degenerates*, who form the class about which Dr. Nordau writes. Lombroso calls certain of them *mattoids*. The mental peculiarities of these persons have been elaborately characterized by Dr. Nordau, and he has given so many symptoms that the reader, I presume, is inclined to say; "Everybody who amounts to anything is a degenerate, and the book simply proves that disease is a good thing and every one ought to have a little of it." I do not shrink from this logical conclusion if the premises warrant it, but Dr. Nordau has not put the matter in quite a fair light. He shows the lack of a certain sense of proportion in his description of the symptoms of degeneration and he does not sufficiently emphasize the vital points. The *higher degenerates*, in order to be strictly classed as such, must possess seriously abnormal qualities, which are not found in all or in most of the great men of the world. Many have a touch of degeneracy without being really degenerates, just as a person may have a rheumatic tendency without ever being crippled by a frank attack of rheumatism.

The signs by which the degenerates are recognized are called stigmata, and they are of three kinds: viz., the physical or bodily, the physiological, and the mental stigmata. An enormous amount of interest has been excited, chiefly through the work of Lombroso, about the investigation of bodily stigmata. The matter is being overdone, like many good things, but there is fundamental truth in the significance of the bodily anomalies supposed to characterize the degenerate. They consist of peculiarities in the developement of the body system, the shape of the head, the conformation of the ears, the palate, the hands, the toes, and other parts of the body.

The degenerate has also some peculiarities of bodily function, such as weakness of the circulation, lack of power to endure fatigue, unusual reaction to stimulants, sterility and allied weaknesses. These form the physiological stigmata. Finally, and

most important, he must have mental peculiarities which are called the psychical stigmata. The two most characteristic are an extreme emotionalism and impulsiveness which go together, and a tendency to *obsessions*, by which is meant "the sudden irresistible forcing and fixing in the mind of ideas that dominate and distress or exalt the individual, despite their being without sound basis." An obsession is an irresistible and fixed idea, though, perhaps, all fixed ideas are not obsessions,—a concession I make out of deference to certain eminent novelists with theories, and honest advocates of free-silver, of anti-vivisection, and of mind healing, etc.

Other mental characteristics are an intense egotism and selfishness. The degenerate is self-centred rather than deliberately selfish. In the horizon of his consciousness he always sees his own figure conspicuously projected. In some cases, a morbid eroticism, and in all cases defects in moral sensibility are noticeable in those who have morbidly deviated from the type. Underlying all is an instabilty of mind, a lack of mental equilibrium. The intelligent degenerate, and it is he whom I am just now describing, is one who makes the judicious grieve; and when the judicious agree in grieving, they have pretty well fixed the diagnosis. Associated with all degeneracy, again, is the inherent weakness of reproduction of the species. The children of the degenerate, if any exist, are more degenerate and the family finally dies out. No pair of degenerates can surround themselves with healthy children and grandchildren. Here is another test which may comfort the degenerate egotism of our later years.

I have described, so far as the mental symptoms go, only those that must be found in the higher class of degenerates to whom Dr. Nordau addresses his graphomania. Insanity, criminality, inebriety, imbecility are the expressions of lower types. Many of the individuals of this higher type are known to the world as "cranks"; others are characterized by economists as "anti-social"; and a large number is looked upon from the religious standpoint as plain bad men. And in this connection it may be noted that Dr. Nordau has tried to show that a large number of the persons whom our Puritan forefathers would have called wicked, are, in fact, diseased. Such is the state of civilization now that if John Knox were living and had thundered against the librettos of Wagner, the novels of Gautier and Zola, the poems of Baudelaire, the plays of Ibsen, and the æsthetics of Kilanyi, we should smile at his simple Christian Philistinism, but when Dr. Nordau directs the choicest stores of a rich and ripened vocabulary in denouncing them, we are seriously interested. It is in his practical application of the facts of degeneration to the artist world that Dr. Nordau has been most criticised.

In many instances Dr. Nordau has undoubtedly made mistakes of a most silly character. He now often drops his scientific method and becomes most interestingly abnormal. In taking a certain person, such as Wagner, for example, and trying to make a diagnosis of degeneracy in the case, a careful alienist would feel obliged to discover in his person, his mode of life, and his work the essential stigmata of the disease. Did the great musician show in any abnormal degree the violent emotionalism, the impulsive acts, the obsession, the egotism, the eroticism, the moral insensibility and instability which characterize the disease? Or did he show the more minor symptoms, such as mysticism, a tendency to inane revery, a mania for writing and iteration of ideas, a sadness of spirit and constant searching after cause—things which, of themselves, have little significance? Were his person and his life characterized by the stigmata of degeneracy? I do not pretend to de-

cide, but I should consider Dr. Nordau's characterization of Wagner as "the last mushroom on the dunghill of romanticism" to be at least severe and hardly warranted by the facts collected. Everyone will agree that a mistake in diagnosis is made in putting the ban upon Ruskin, the harmless and interesting pre-Raphaelites, and certain others whom the artistic world admires. I doubt if Ibsen is "a malignantly anti-social simpleton," for the great mass of people are not affected by him, find no message in his work, and tolerate his gloom for the sake of his fine dramatic art. Dr. Nordau lacks the saving grace of humor, with which no one can be really insane, and he takes some of the queer turns of the artistic nature too seriously.

But while Dr. Nordau makes his mistakes, he achieves also splendid successes, and I know nothing finer, more refreshing, more scientifically accurate or helpfully ethical than his portrayal of the essential disease and depravity underlying the art of the Parnassians, the decadents and æsthetes, and certain types of realists. There are among them art and poetry, but it is the stuff that comes from nature's slums; it is the stenching secretion of the diseased growth; it is nature, to be sure, for death and disease are natural; but it has nothing in common with healthful life and the effectiveness of the race. And it is here that Dr. Nordau's book possesses its essential value. It teaches us to discriminate in our search for art and æsthetic impressions. The art-work of the degenerate may have value, but it is often tainted, and we must accept it critically, not sympathetically. Furthermore, we can be very sure that the art ideas of the degenerate are usually tinged with folly; they really do not tell us anything new, or move us forward toward perfection. Some critics cry impatiently, that they do not care for the man, if only his work be beautiful; but the things cannot be entirely dissociated. If the man is really a form of decay, his art will show it in time; like the putrid fish, it may shine but it smells.

There has grown up a curious feeling that art is sacred; the formula "art for art's sake" is supposed to answer all objectors; and whoever denies the essential value of a thing that is agreed to be "beautiful" is a Philistine, or simply stupid. It requires much personal and civic courage to suppress a play or a "living-picture" if the critics assert that it has æsthetic value. This, I submit, is not what modern ethics teaches. Art is not an end; it should only color our life, not chisel its form (I believe I am quoting from Bulwer); and the really beautiful may be dangerous, devilish, and nasty. So I say again that those who protest against vileness should not be silenced because a thing is really beautiful; if the beauty does not promote the efficiency of the race, it has no justification for its being.

There can be no question that many of the pseudo-geniuses in art and literature, such for example as Oscar Wilde, are degenerates. Whether genius is an evidence of degeneration seems to me a matter not very difficult to decide. Most men of genius, especially on the artistic side, have shown marked signs of of degeneration; they, technially speaking, have a degree of degeneration, but they are not true degenerates. In particular their genius in itself is not a morbid thing or stigma; to say this would be a manifest absurdity. The true degenerate is never a real genius, but a pseudo-genius, or, as Lombroso calls him, a *mattoid*. It is this kind of person, the art and literary and political and social *mattoid*, that society should scrutinize and beware of."

SOCIETY REPORTS.

THE OHIO STATE MEDICAL SOCIETY.

May 15, 16 and 17, 1895.

The Society convened in the Chamber of Representatives, State Capitol Building, Columbus.

The Address of Welcome was delivered by the President, D.N., Kisman, M.D., of Columbus:—He said.

"This is our Fiftieth Anniversary. It is one of the milestones in any human life, and it is a milestone in the life of a society like ours. There are none present, and there are none living so far as I know, of those who first constituted the society. There may be one or two. Dr. Hamilton is one of the old members present, and Dr. Gay is also in the city.

I can but congratulate you upon the splendid history of this Association. Every year we are getting less and less like unto Rome. In Rome, for six hundred years there was no physician! That cannot be said of the State of Ohio, where we have one physician for every five hundred people. In Rome they resorted only to religious ceremony. When there was an epidemic the gods and godesses were carried out on golden beds, and the dictator would go to the temple and nail a golden shield with golden nails to the door, and implore the gods to arrest the disease. We send the Health Officer. Our efforts have been much more satisfactory than those of the Romans. We congratulate you upon the happy auspices under which we assemble.

W. T. Howard, M.D., Cleveland, read an article entitled

THE ANTITOXIN TREATMENT OF DIPHTHERIA.

(See page 27.)

F. D. Case, M.D., Ashtabula, read an article entitled

CLINICAL REPORT ON THE EPIDEMIC AT ASHTABULA.

(See page 35.)

These papers were discussed together.

DISCUSSION.

H. D. M. Moore, M.D., Columbus:—Nothing of interest remains, I think, to be said upon this matter, except perhaps the addition of the statistics of the work done in the microscopical diagnosis of diphtheria under the direction of the Health Board, here in Columbus. Beginning with December last, I have examined for the Health Board some 81 cultures, made at the bedside with the ordinary outfit. Of these cases, 30 were diphtheria and 51 were something else.

The system of distribution of test-tubes was to leave them in drugstores, and the outfits were collected by the Health Officers as they came in, in the evening. Under the extreme poverty, this was perhaps the best plan that could be adopted. However, the Health Officer was not likely to pass a drugstore or to call immediately after the test-tubes were left, and it was often 48 hours after they were inoculated before the test-tubes came into my hands, That period was too long, but the system was probably the best that could be adopted, under the circumstances.

J. S. Haldeman, M. D., Zanesville: I think, in the language of Dr. H. A. Carrington, of Bristol, Conn., "that the attitude of a physician towards a new remedy should be neither hostile, refusing any tolerance of claims put forward on its behalf, nor that of excessive credulity, expecting any marvellous results from the new-comer."

Now it is claimed that the bacilli found in the various secretions, membranes or blood of any of the various diseases named, or any others, is the pathognomonic indication of the one examined, and is its veritable generator. So, then, destroy these bacilli and your patient immediately becomes convalescent and recovers. All we need to do then is to administer the antitoxin, a remedy created from the cause of the disease—the bacilli, to effect a cure

through a long, complicated and tortuous (if not torturing) process. In all candor, does not this savor a little of homeopathy, similia similibus curantur? I always thought, as infinitesimally small as the dose was in homeopathy, say the decillionth part of a grain of anything, or less, so small and nugatory were the doctrines and the whole system. This whole modern anti-diphtheric serum curative operation is, to my mind, very faintly satisfactory. The new treatment has drawbacks, and great ones, which the old one has not. It has them in the manner of its manufacture. It has them in the cost attending its purchase and administration. It has them in not being able to furnish the anti-toxine in sufficient quantity and in due time for use in city, town and country. The mortality rate is not high in my own practice, which covers a period of about forty-one years. During that time I have practiced in several diphtheria epidemics. In the year 1878, when I was physician to the John McIntyre Childrens' Home, Zanesville, O., there were at one time thirty of the inmates down with it in its most malignant form. All recovered but one, and the matron thought that the patient would have recovered if they could have made him take the medicine. This was a mortality rate of a small fraction over 3 per cent.

E. B. FULLERTON, M. D., Columbus: I want to say that I appear not as a medical infidel but as the honest doubter.

I believe there are a few points where there is likely some mistake in regard to the statistics. In the first place, I doubt very much whether we are to receive in America the fatality of this disease in European countries, 40 to 60 per cent. I doubt whether in Columbus, Ohio, it has ever much exceeded 35 per cent. In some 30 cases there were but four deaths, that is 13 1-3 per cent. In New York, Dr. Jacobi, in speaking upon this same subject, said the epidemic last winter in his belief would not, under the ordinary treatment, exceed 25 per cent. mortality. It has been claimed to be but 22 per cent. under the serum therapy.

Now, in regard to the serum. Reasoning deductively we would take the serum as the least vitalized substance in the body, consisting principally of water and a few salts. How is the effect produced? Does it act as a poison to the micro-organism? Or, do we obtain a good result from it because it feeds the phagocytes? These theories, it seems to me, should be worked out a little more thoroughly.

What has been the effect upon the statistics, as to mortality, of modern methods of diagnosis? Haven't there been introduced a larger number of cases under the same title? If we, by bacteriological examination, introduce many mild cases, we can easily reduce the percentage of deaths under any treatment.

I would like to ask whether Henry Smith, who distributed the milk, was among the cases that recovered; or, was he among the mild cases which ordinarily would be called something else? I know when I was in Columbus, even good physicians would reserve their diagnosis until they knew whether the patient would die or not. I would like to know whether, by introducing these mild cases, there is not a chance for fallacy in the statistics.

Then, I have long believed the ordinary treatment of diphtheria is fallacious. What good can the tincture of iron do? We know iron is very little assimilated; it requires days, or perhaps weeks. What, is the use of giving chlorate of potassium? One man has died under it, and we know it is an irritant upon the kidneys. Then, the local treatment has been very faulty. The tearing off of the membrane and the application of caustics, which has been practiced for years, is, in my opinion, faulty. Gentlemen, I have had very little trouble with diphtheria since I have quit using these means, and have not used quinine. I used simply plenty of hot milk, plenty of whisky, and the general supportive treatment.

L. S. EBRIGHT, M. D., Akron: It would seem that the gentleman who has just taken his seat cannot class himself with King Agrippa, because he said to Paul, "Almost thou persuadest me to be a Christian." The gentleman said at first, he was somewhat of a doubter regarding the anti-toxine; but, before he sat down he satisfied me he was a doubter regarding all treatment. Because Smith did not die but got well, after he distributed diphtheria in Ashtabula, does not argue that you must not give certain remedies. I have been passing through an epidemic of diphtheria where the anti-toxine has been used in some cases, and in some cases it

has not been used. I am the physician in the Children's Hospital, at Akron, and am also Health Officer, and had an opportunity to study the epidemic since the fourth day of March. I have no desire to occupy your time or convert any man to any special treatment, but I do believe he who treats diphtheria, or any other disease, and does not give his patients the benefit of every remedy furnished him by science is in a certain measure responsible if the patient dies. A skeptic and doubter regarding the anti-toxine treatment, believing it should be classed with "blue glass" theory, on the 31st day of March I was driven to the use of the serum. On the 21st day of March I saw a boy with what I believed was diphtheria. Afterward I found him convalescent. Later I found a boy who had scarlet fever. On the 28th the nurse was aroused by the peculiar cough from this boy. I was called at 5 o'clock and saw him at 6. I diagnosed diphtheria. My prognosis was unfavorable; and, whether it was the disease or the strict discipline in the house, my prognosis was verified within two days. The boy died on the 30th day of March. In that hospital there were 40 boys occupying a common bed-room; and 16 girls another common bed-room; the children in the nursery a common bed room, and all eating in a common dining-room. I could only expect that I was in for an epidemic of diphtheria, and fully anticipated a number of deaths. I went to Cleveland, saw Professor Ohlmacher, and he promised to come back with me, which he did on Saturday. And I want now to make my public acknowledgement of thanks to him for it. We commenced using the anti-toxine, and from the time we commenced using it in that hospital and in my private practice, I have not had a case of diphtheria, except two, that have not been examined bacteriologically, and there has not been a case but cleared up within 24 to 48 hours. There has not been a child, out of 27 cases I have seen, but could drink from a bowl of water shortly after introducing the anti-toxine, as well as any time before the attack. For instance, a colored boy, seven years old, was seen on Friday, when he was so hoarse he couldn't speak above a whisper; temperature, 103 1-5°; pulse 140. He looked like a pile of ashes. I fully anticipated he would follow the way of the white lad who didn't get any of the anti-toxine. I gave him 5 ccm., and afterward 5 ccm. more, and at 4 o'clock the next day he sat up and sang with a clear voice. A German child, seven years old, who has worn a tracheotomy tube since the 9th of January, was seen by me on Thursday. I believe the tracheotomy was performed for polypi in her throat. When I saw her, her pulse was 140, and she had all the evidences of diphtheria. I gave 10 ccm. of the anti-toxine at 4 o'clock in the afternoon. The next morning her throat was clean, and she has not taken a dose of medicine since. I saw her yesterday, 16 days afterward, and she is well.

Mrs. Mc. D., weighing 133½ pounds, very dark complexion, long black hair, without a tooth in her mouth but had been filled, with a bad breath, heavily coated tongue, pulse almost past counting, temperature 100°. A physician who saw her offered a wager of a bottle of wine she would be dead within 24 hours. She had fainted three times before I saw her. After giving the anti-toxine, the patient recovered.

BOSTON MEDICAL LIBRARY ASS'N MAY 11 1896

J. A. MURPHY, M.D., Cincinnati: It is well in the few remarks I shall make, that I should lay down one or two propositions that are somewhat broad. The first is, there are hardly two cases in any epidemic, or under any circumstances, that are alike. Take cholera or scarlet fever, for instance. I have heard men, years ago, stand up in Cincinnati and say they never lost a case; and lo! and behold! there comes an epidemic and they lose every case they have. Now, take this disease, diphtheria. We have a mild epidemic and the diagnosis is made by the good old practitioners, who from their experience are able to make a clinical diagnosis. Few cases are lost. Then there comes another epidemic and about one-half the cases will be lost. Now, let my friend remember this proposition, and I don't think he will deny it—he is greatly enthused, and I would not check his enthusiasm. He has claimed to have the most remarkable results within 48 hours, or even less. Sir, he has had a very rapid action from this antitoxin injection, which is very contrary to what I have read from others and what I have been told in the city of Cincinnati.

I can only touch very briefly the paper from Ashtabula. Dr. Case has laid down to us a proposition that these children, or a

large number of them, got the disease from the man who carried milk around. He has given us no results of a bacteriologicol examination of that man's throat. If he had diphtheria, how would the bacilli get in the milk? Would he spit them out? Our friend says, if you find a Lœffler bacillus in the throat, you are sure you have the diphtheria. Why, gentlemen, these bacilli are found for six weeks after the clinical manifestations of the disease are gone; and further, they are found in the normal throat. There must be some little phagocyte or worm or bug, very virulent, which after-ward destroys this Lœffler bacillus, weeks after the patient has had diphtheria, or where he has not had diphtheria.

If you find two or three, four, five, or six of these bacilli in the mouth, what does it mean? Should the patient have anti-toxine? Will he have diphtheria? Will our friend from Akron, with the eloquence of his logic propose to throw in 5 ccm. of the anti-toxine in these cases? Why not? He says patients with Lœffler bacilli in the mouth or nose are in danger. Of what? Of the toxines these bacilli make, and these toxines producing sepsis.

The next point. The bacteriologists, with a skilled eye and a good microscope, fail to find the Lœffler bacilli in a good many cases of diphtheria. Such cases are diagnosed by your old-fashioned practitioners from clinical experience and observation. The gentleman who used the microscope to make a bacteriological examination will not deny that these are cases of true diphtheria, but he will stop and say, "I don't know,"—which is a very proper answer. This is one of the conundrums. Facts often lie, but the quickest liars are figures. There are no liars like figures. What has taken place in Germany? Hundreds and hundreds of people have rushed with their children to the hospitals, with mild and with malignant cases, greatly lowering the mortality. The same thing takes place without the anti-toxine.

Another question. In all these cases nothing is said about the local treatment and about stimulation. My young friend Dr. Eichberg, from Cincinnati, said, when I asked him directly, "By no means will I throw aside the local treatment, peroxide of hydrogen, the iron and perhaps the bichloride of mercury."

Now comes up the question which Dr. Ohlmacher has stated, about the manufacture of this anti-toxine. How long is it safe? Who can explain the death of the woman the other day, in a very short time after the use of the anti-toxine? It is a conundrum. If Dr. Ohlmacher's statement is true, this anti-toxine ought to be put in a refrigerator and not kept long, but carried to the place and used immediately. Nothing has been said as to whether these are the sequelæ or the consequences of diphtheria-pneumonia, albuminuria, bronchitis and various other conditions which have immediately followed the anti-toxine treatment.

J. NORTH, M. D., Toledo:—I want to rise on the part of the young men. It has been said that figures lie. I believe there is a mistake in that. Figures do not lie, but *figurers do lie.* There has been a great deal quoted about the statistics of the past and the statistics of the present. I believe the statistics gathered during the last few months are the only ones of any value, because before these everything was reported as diphtheria, and now we know what is diphtheria and what is not diphtheria.

Regarding the good results of anti-toxine. Virchow, who was at first very skeptical about it, finally admitted the use of the anti-toxine in his hospital in Berlin. After a time the supply of anti-toxine was exhausted. He was out of the city and when he returned, about two weeks afterward, he found the mortality had increased to almost double what it was before. He went back to the use of the anti-toxine, and the mortality went down to where it was before when they used it. With such reports, I think we cannot go back on the figures. I have had no experience whatever in the use of anti-toxine because in Toledo we have had very little diphtheria since the anti-toxine has come into use. But I believe in the use of it. I think the statistics justify it. Some one spoke of a woman who died from it, but for everyone who dies from the anti-toxine, you can find a hundred graves marked diphtheria, diphtheria, diphtheria. I believe it is one of the best things we have had in this country. And then, in connection with diphtheria, we have the staphylococcus, which complicates the cases very much. Only recently we have an anti-toxine for such cases. Where this anti-toxine has been used, almost every

case has recovered. Now with the combined treatment of the diphtheritic anti-toxine and the staphylococcus anti-toxine, I think we will be able to save a much larger proportion of our cases. Because, statistics tell us that where the Klebs-Lœffler bacillus is found alone, we have much better results than when so complicated, and if we have an anti-toxine to counteract the other bacillus, we have something of very great value.

JOSEPH EICHBERG, M. D. Cincinnati: The question of the anti-toxine treatment of diphtheria is not a question between the old men and the young men of this Society, and the young men require no special defence. The treatment stands on its own merits; and if it falls, it must fall of its own weaknesses. No question can be discussed except by those who have had experience; and they are almost unanimous in favor of the anti-toxine treatment of diphtheria. It is not fair to judge of its success from its effect in cases which would certainly die under any treatment. On the other hand, we should not say that more mild cases are being cited for this plan of treatment than heretofore. Nor does it change the position because the gentlemen who have had recourse to this treatment have retained the local treatment. Even with all these measures of treatment, cases have succumbed. Nevertheless the anti-toxine treatment will save many cases. Such beneficial results were cited by the gentleman from Akron. The same results have not been obtained by any other remedy. The change in the appearance of the throat in 24 hours is almost magical, and it would be difficult for one not familiar with the plan to believe it if seeing were not believing. There is no stronger argument, in my mind, as to the efficacy of the treatment, than a statement by Prof. Virchow, of Berlin. The supply of anti-toxine was for a time discontinued because the demand could not be supplied, and the mortality rate rose 23 per cent. On repeating these facts to the Pathological Society, Prof. Virchow says, "we can not explain the action of the anti-toxine on any approved therapeutic plan, but any physician is culpable who does not use it."

When it is borne in mind that Prof. Virchow is not hasty, and it was through him the first information was brought before the profession as to the bad effects of tuberculin, his remark should have weight.

There is no better way to kill or throw cold water upon anything than by ridicule. The fact "Figures will lie" sometimes, when wrongfully interpreted, is not to be thrown up as an argument against figures. I would like to know Dr. Murphy's way of gaining information as to the value of treatment in any disease, if not from the computation of statistics from many sources. In the epidemic at Akron, where I believe seven out of 27 cases died before the introduction of the anti-toxine treatment, only one case died afterward and this had not received the treatment until some two weeks after the invasion. The longer we delay the treatment after the appearance of local symptoms, the greater is the danger to the patient. The value of the anti-toxine treatment will appeal to every one who will employ it. As to its curative properties, there can be no doubt in the mind of anyone who has properly employed it, though its prophylactic value has not been clearly established.

Fibroid Tumors and Pregnancy.

In Archiv. de Toc. et de Gynéc., October, 1894, Remy reports a case of a woman with a large fibroid tumor becoming twice pregnant. There were two distinct tumors in the abdomen, one on the right side and one on the left, which at full term were about of equal size. In the first labor the fœtus was dead, but in the second a living child was born and the mother made an uninterrupted recovery.

Hofmeier (Zeitsch. f. Geb. u. Gyn. bd. xxx, heft 1) says that myofibromas complicating pregnancy do not impose any particular danger on the patient, either from hæmorrhage or interruption of gestation; in fact, the dangers of such a pregnancy are no greater than those of a normal one. In some cases there is a rapid hypertrophy of muscle fiber of the uterus, but this rapidly recedes after confinement, and should not constitute a danger to the patient.

In Love.

Mab—"And is this really the first time you were ever in love, Freddie?" Fred—"Absolutely, darling; but I sincerely hope it won't be the last!"

ABSTRACTS.

Tea-Inebriation.

The American Therapist publishes a criticism of the report of the Board of Managers of the Pennsylvania Hospital, by Dr. James Wood, in which he remarks that he may be permitted to criticise the liberality displayed in that institution in the supply of tea and coffee, considering the deleterious effects of their indiscriminate use among persons who are supposed to be sane.

The writer has already reported a hundred and twenty-five cases of tea-inebriation. In the study of these cases it was found that seventy-two per cent. of the subjects were persons generally known as nervous; twenty per cent. had frequent attacks of faintness; fifty per cent. were troubled with gastric or intestinal indigestion with all of the attending ailments; three per cent. had seriously contemplated suicide; forty-five per cent. were sufferers from persistent headache or capital neuralgia; ten per cent. had spells of great depression; twenty per cent. were troubled with perceptible palpitation of the heart; and twenty per cent. had insomnia, and when it was not complete, what little sleep they were able to get was greatly troubled by the most harrowing nightmares and dreams. In twelve per cent. increasing muscular tremors were noticed, and among quite a number well-marked hallucinations, especially those of impending death and robbery. Such a picture as this, says the author, presented to the thoughtful physician, is most deplorable in every respect. These poor individuals often confess to a degree of tea-drinking which, without question, makes the habit an actual dipsomania.

Chlorosis not Necessarily a Disease of the Young.

Rieder's (*Munch. Med. Wochen Mch.*) opinion has been well known among German physicians, but little regard has been given to the other side of the question by the English and American physicians. He produces new facts, and reports three cases occurring in later life, with the object of showing that chlorosis is not exclusively a disease of earlier life. He regards as pure chlorosis that form of anæmia (1) which arises without obvious cause; (2) in which, apart from some dilatation of the heart, etc., there is no evidence of visceral disease; and (3) in which the hæmoglobin of the blood is diminished and the number of red cells somewhat lessened. Cases 1 and 2, occurring in women aged 36 and 40 respectively, presented all the typical signs and symptoms of chlorosis, and ended in complete recovery. In the third case of a woman, aged 42, both the red and white cell showed changes. There was even marked poikilocytosis. Eosinophile cells, as well as mononucleated, polynucleated, and neutrophile white cells, were present. Very considerable improvement took place, but the patient was still under treatment. In none of the cases was there any evidence of organic disease. In Cases 1 and 3 certainly, and in Case 2 probably, there had been no previous attack of chlorosis. The author draws attention to the value of treatment from a diagnostic point of view. Blaud's pills and the albuminate of iron (Drees) were employed in all cases.

Apoplexy.

Dr. Charles L. Dana has shown in the *Medical Record* the results of his study of the causes, mode of onset and prognosis of apoplexy. Concluding, he says: I can hardly make a summary of the points I have wished to bring out without going into considerable detail. I wish, however, to emphasize the fact that apoplexy and hemiplegia occurring in early adult life are much more frequently due to syphilis than to embolism, and syphilis is a factor in a third of all apoplexies, at least in large cities.

The apoplexies are increasing in disprotionate frequency, owing partly to the facts: that more people live to the apoplectic age; that there is a larger urban population with all that implies in regard to the use of alcohol, the prevalence of syphilis, and the greater intemperance in eating and working.

Apoplexy does not especially effect brain-workers if they live temperately, but rather spares them.

Apoplexy is sometimes a conservative agent, calling a halt to excessive activity and intemperate living and actually prolonging life.

CURRENT LITERATURE REVIEWED.

IN CHARGE OF ELLISTON J. MORRIS, M.D., AND SAMUEL M. WILSON, M.D.

BUFFALO MEDICAL AND SURGICAL JOURNAL

Dr. F. W. Bartlett has an article on

Enterocivsis Enerocolitis and the Zymotics.

The author began using a solution of two grains of corrosive sublimate in a quart of warm water as an enema in dysentery, and his good results led him to apply the same treatment to typhoid fever and then to scarlet fever, diarrhœa of all varieties, measles, diphtheria, and every disease in which he believed the color contained poisonous excrement. Warm water was used for a while as a counter test, but was not successful.

In using this treatment it is important to place the patient on his right side, the hips slightly elevated to benefit by the position of the colon. If on the left side only a small enema can be given. An oiled catheter is preferred to the rectal tube of commerce and is introduced as far beyond the sphincter as comfort of the patient allows. The syringe is now attached, the enema slowly given which will be expelled in a few minutes. A chamber slop jar is more convenient than the smaller one most commonly used. A second evacuation usually shortly follows the first, after which any sedatives necessary may be administered. The author has had good results from this method, thinks the bichloride of mercury better for the purpose than other antiseptics, and varies the strength of his solution from a grain in one pint to a grain in two and one half pints according to the age of his patient.

Instead of a cold bath of the entire body as in typhoid fever an ice pack to the abdomen only is preferred when there is hyperpyrexa.

Mr. Richard H. Satterlee makes the following *Note on Smoked Glasses.* A cheap colored or smoked eyeglass is sold made with curved surfaces, and as these are rarely quite parallel they cause eyestrain. It is much better to purchase glasses with flat surfaces.

BRITISH JOURNAL OF DERMATOLOGY.

Dr. J. F. Payne describes a case of

Destructive Folliculitis of the Scalp in a Syphilitic.

The disease is analogous to sycosis of the beard and is a suppuration of the whole follicle but is peculiar in resulting in destruction of the follicle and permanent atrophy of the skin. A bacterium has been found which is capable of causing this, but the author quotes Fournien as mentioning a case in which syphilis was the cause, and therefore thinks it probable that either cause might lead to the disorder. The disease has sometimes been mistaken for alopecia areata.

The patient was a small, pale, cachectic girl fourteen years old, complaining of a disease of the scalp of six or seven years' duration. The trouble was a suppurative folliculitis producing also crusts and scales similar to impetigo. Absolute destruction of some bulbs had caused a large oval bald area some inches long. Tinea and favus were excluded by the absence of broken hairs.

The general condition showed either tuberculosis, inherited syphilis or some similar affection.

At first phosphate of iron was administered and dilute citrine ointment with creosote used locally. This proving useless small doses of iodide of potash were given with prompt benefit which increased when hydrary cum creta was added, and finally bichloride with iodide of potash. The general appearance of the child improved and a cure resulted except that no new growth of hair came in the bald spot.

It is interesting to note that the father contracted syphilis before marriage but none of the secondary symptoms were noticed and none of the children showed syphilis until the patient and one other were born; both of these were diseased and in both the manifestations were of the tertiary form, and about the time of their births severe tertiary symptoms began to manifest themselves in the father.

Annals of Gynecology and Paediatry.

Mr. Charles J. Cullingworth writes of

Removal of the Uterine Appendages for Uterine Glioma.

In his paper the author describes the symptoms and course of twenty cases and draws the following conclusions from his experience: "The operation affords an almost certain means of relieving all the more dangerous symptoms in cases in which active treatment is necessary and in which removal of the tumor or tumors is either impracticable or likely to be attended with special difficulty or great risk.

Although in experienced hands the mortality is not high, it should never be spoken of as a minor operation. Its usefulness will become lessened as the mortality of hysterectomy decreases.

It is impossible to know beforehand whether in a given case it will be an easy or an impracticable operation. It is unsuitable in cases where the tumors are very large or have become œdematous or degenerated. It is particularly applicable to those cases in which the tumors are mainly intra pelvic and in which operation is necessary to relieve or prevent dangerous pressure.

Before being submitted to an operation, the patient should be made aware of its uncertainty. Relief is not generally so prompt, nor convalescence so uniform as in ordinary ovariotomy or abdominal hysterectomy.

AMERICAN JOURNAL OF OBSTETRICS.

Dr. Mathew D. Mann writes of

Perforation of the Uterus After Abortion With Prolapse of the Intestine.

Three cases of this accident came under the author's notice. In one case a woman per-

forated her uterus by the introduction of a catheter with its stylet. The physician to whom she applied for treatment did not recognize the condition until in curetting the uterus be found torn intestine in it. An abdominal section was performed by the author, and he found it necessary to ligate the mesentary in several places, and to use a Murphy's button to reunite the colon and ileum. The patient recovered.

The other cases were ruptured by surgeons using dilators in treatment of abortion. One operator finding that he had ruptured the uterus and that there was prolapse of intestine tried to get competent assistance and, failing, did an abdominal section. The patient died of sepsis. The other man finding the same condition lost his head and after pulling out six feet of intestine cut it off in the belief that it was part of the fœtus. This woman died of course.

This occurrence does not seem so rare as might be supposed. The uterus after an abortion is particularly liable to rupture by forcible dilatation or by rough curetting. When rupture occurs a well arranged coeliotomy will usually be successful and there is no need of great haste in performing it unless the hemorrhage is severe.

Dr. G. Leopold has a paper on *Myomectomy During Pregnancy.*

The author found it necessary to remove a tumor of the uterus from a pregnant woman, and found it to be a partly calcified myoma extending deeply into the muscle. Pregnancy continued and terminated normally.

The author has found about thirty cases reported and gives a table containing a condensed report of each.

Dr. Julius Rosenberg writes of *Fibroid Tumors Complicating Labor.*

Three cases are described in which fibroid tumors were present during pregnancy and were left undisturbed, labor progressing without much interference and the tumors either disappearing or getting much smaller post partim.

The author is opposed to myomectomy during pregnancy, thinking the trouble usually best left to nature.

Dr. Francis Foerster writes about

Retrodisplacement of the Uterus.

Acute cases following an unhealthy puerperium are usually amenable to palliative or mechanical treatment. Cases of longer standing lead to an overgrowth of the parts concerned and call for surgical treatment. In many of these curetting and amputation of the cervix lead to involution and great improvement, and after the use of pessaries for a while cure may be obtained. The inflammatory conditions may have gone beyond the congestive stage though and it may be unsafe or impossible to operate except by cœliotomy.

In other cases fixation of the uterus either through the vagina or to the abdominal walls is sufficient, and different operators differ in their opinions about the comparative merit of the various procedures.

The author prefers the Alexander operation, but has devised a plan of vaginal ventero fixation which he thinks even better.

After thorough application of antiseptics to the vagina the patient is placed in lithotomy position, the uterus curetted, Douglas' pouch opened and any existing adhesions broken by the fingers.

A uterine sound with a large knob is now introduced and the body of the uterus made to protrude at the vulva, and the appendages treated as found necessary or perhaps removed. The anterior uterine surface is now scarified, the fundus transplaced with the ends of the sutures hanging in the vagina. By a specially constructed canula needle these are now drawn through the abdominal wall and fastened over a gauze compress. Two sutures partly close the vaginal wound and a strip of gauze is used for drainage. The peculiar needle is absolutely necessary to avoid wounding the bladder and intestine.

Dr. Charles I. Probfen reports a Case of

Floating Spleen in an Infant Following Malaria.

The child was a foundling admitted to the asylum when two weeks old, and was then seemingly healthy. It was given to a woman to nurse and not thriving was given to a different one. The child was now found decidedly unwell, fretful, feverish, etc., and suffering from alterating attacks of constipation and diarrhœa. The abdomen was protruding and the spleen found greatly enlarged. No other evidences of syphilis or of leucocythæmia being found the blood was examined for Laveran's plasmodia and these being found the child was given six grains of sulphate of quinine three times daily, alternately with full doses of arsenic. Prompt improvement was seen with diminution of the spleen, and two months after treatment began the organ was found free in the abdomen about twice its normal size.

This condition in an infant in this latitude is very rare and regret is felt that the history of the case could not be known.

Dr. S. C. Ayres discussed the

Relation of Uterine Diseases to Ocular Diseases.

The author has seen cases in which functional or organic ocular diseases were easily traced to uterine trouble. These disorders usually become worse at time of menstruation and when this was irregular or painful they often were cured when the uterine trouble became less.

These disorders are most frequently found about puberty and the menopause, and are very frequently mistaken for serious disease of the eyes.

Dr. A. B. Thrasher writes of

Reflex or Hysterical Affections of the Larynx.

In this class the author has found an organic trouble, in another part of body perhaps, the relief of which led to cure of the laryngeal trouble.

In hysterical aphonia he thinks there is always an objective lesion even if we cannot

find it. Tubercular laryngitis is often diagnosed from sulyectine symptoms when the lungs are diseased, but the laryngoscope would show a healthy larynx.

Dr. A. W. Johnston writes of the

Pathological Aspects of Stevenson's Wave.

Stevenson of Aberdeen University discovered by delicate manometers that the pelvic blood pressure varies in a woman during her menstrual life, from one period to the next in a definite manner.

The pressure is greatest at the commencement of the flow, least immediately on its cessation and remains at about the same height for seventeen days when it again begins to rise.

Derangement of this cycle or insufficient pressure leads to various pathological phenomena, headache, convulsions, nausea, vertigo etc. Two cases were observed in which headache was accompanied by a temporary, regularly recurring, glycosuria and the author explains this as caused by undue pressure in the floor of the fourth ventricle leading to pneumogastric inhibition and this to hepatic inaction. When the wave occurs normally and there is no escape for the blood, owing to thickened endometrium or some similar cause we find abnormal congestions elsewhere—vicarious menstruation, etc. Vicarious menstruation usually shows a local trouble requiring treatment at the place of hemorrhage.

When the pressure fails to reach its normal height we find nervous disquiet, etc., and anæmic phenomena as frequently seen in phthisis. Recognition of the existence of this wave has allowed a more satisfactory treatment and diagnosis in obscure cases than could otherwise have been brought about.

THE RAILWAY SURGEON.

Dr. W. B. Dutten writes of.

Malaria in Reference to Operation and Injuries.

It has been the experience of the writer that when the employes of a certain railroad, which runs for some distance through swamps, are injured they are apt to develop malaria. Injuries which seen very trivial are apt to show this complication and to become of great importance owing to it. Another peculiarity mentioned in this connection is that persons residing in a malarial district may seem free from all traces of the disease and yet develop very severe attacks after moving elsewhere. These attacks have appeared even in Montana at an elevation usually regarded as an absolute protection from malaria. It is now generally believed that four different organisms produce attacks of malaria and that they may be microscopically distinguished. Of these only two lead to pernicious malaria, the organism of quotidian fever and that of summer autumnal malaria. It is obvious then that if the blood of a patient is found to contain either of these a thorough treatment with quinine should promptly begin.

Dr. R. F. Miller writes of

Compound Fractures.

When these injuries occur from railway or machinery accidents we have a badly soiled wound usually with great injury of soft parts, perhaps a large vessel also. The old treatment was to amputate, but the modern method is to anæsthetize the patient, thoroughly scrub the limb, cleanse the wound removing foreign bodies, splinters of bone, etc. The wound is now irrigated, preferably with a $\frac{1}{1000}$ warm solution of bichloride and the ends of the bone apposed (if possible suture the periosteum) and ligate any torn vessels suturing to keep the soft parts in position. If the original opening is too small to admit of thorough examination it must be enlarged. A counter opening for a drainage tube is now made, the tube inserted and the limb dressed with antiseptic gauze and a fenestrated splint.

A daily examination of the wound may be made for a few days. The main point in the treatment is antisepsis. If amputation proves necessary it can be performed later.

INTERNATIONAL MEDICAL MAGAZINE.

Dr. A. R. McComas reports a

Case of Abscess of the Brain

Remarking that some men still fail to operate in cases of compound fracture of the skull with depression the author describes a case which fell into his hands after such an accident. The patient was a miner, sixteen years old, whose head was forced against an iron bolt in such a way as to fracture the frontal bone. A physician sewed up the wound in the integument and the author saw the patient seventy-nine days later. The scalp wound had not healed and complaint scalp wound had not healed and complaint was made of chilliness, pain in the back of the head and some slowness of cerebration was noticeable The diagnosis made was abscess of the brain, but an operation was refused until a few days later when a convulsion occurred, leaving the boy comatose. Operation evacuated about three ounces of pus. A compress was applied but had to be removed, resulting in cerebral hernia. This was subsequently ligated and removed. Recovery, except for slight impairment of memory, was complete.

Dr. Frank Billings writes of

Arteris Sclerosis.

The disease, though rare before forty years, may be found much earlier. The negroes seem to be particularly susceptible. Dissipation, gormandizing and eating food in quantity relatively great for the labor performed, alcoholism, gout, syphilis, etc., are well-known causes of the disease.

Milk has seemed the most satisfactory diet and iron, either as Basham's mixture or as the tincture alone or with dilute phosphoric acid with glycerine has given good results. The treatment, of course, must be continued and cases are cited where it was used continuously for years.

Dr. Charles Lester Leonard has an article on the

Endogenous Formation of the Malarial Parasite

illustrated by microphotographs.

The question has been considered unsettled as to whether the parasite is capable of assuming different forms in a life cycle or whether there are a number of organisms which produce malarial fever

The author has described the changes as follows: "An amœboid parasite from one fourth to one fifth the size of a red blood corpuscle non pigmented and showing marked activity in the pseudopodia. The organism increases in size occupying one half or two thirds of an entire red corpuscle and contains melanin in small rods and granules derived from the pigment of the host. The red corpuscle is destroyed as the parasite increases until it is replaced by that organism. During this time segmentation has commenced and after the destruction of the red corpuscle the parasites break into the first or amœboid forms and attack new corpuscles while the pigment gathered by the parent is set free.

The author in another paper describes a method of taking at definite intervals instantaneous photographs of the same microscopic field. Applying this method he shows a series of photographs showing parasites in all the stages and three of them show the same parasite in three consecutive stages, finally coming to a state of rest as a spore form or malarial crescent.

The change in this instance from an extra corpuscular amœba to an intra corpuscular pigmented one took only two minutes.

BRITISH JOURNAL OF DERMATOLOGY.

Dr. Jonathan Hutchinson writes of the

Neurotic Origin of Hydroycstoma

The disorder described under this name has been frequently seen in New York and it is noted that most of the cases occurred in washerwomen usually of middle age.

All the patients perspired freely and the rash was worse in summer, sometimes quite disappearing in winter. The eruption seems due to an obstruction of the sweat ducts, the cause of this being unknown, but due to some nervous derangement apparently, this view being supported by their not infrequent appearance with xanthelasma.

The subject about whom the article is written is a florid woman of 64 years. Forty years ago she suffered from excruciating headaches which are now rare, but severe when they occur. They seem to be replaced by neuralgia of the tongue which is almost constant and is worse on the right side and began in entire loss of taste on both sides. Herpes occasionally forms inside the lips. The patient has a rheumatic or gouty history and is a curious example of unilateral sweating, perspiration occuring mainly on the right side of the body, though slightly also on the left.

Little cysts which were thought to have been more or less present for about nine years, were found about both upper and lower lips near the canthus, in the outer two thirds of the eyebrows, on the bridge of the nose and on both sides of the forehead. These occurred mainly on the right side, and the rest of the face was almost free.

The existence of this trouble following severe attacks of hemicrania usually limited to the right side and apparently not due to hepatic derangement is noteworthy.

Dr. Leslie Roberts describes a case of

Impetigo of Duhring,

The patient was a child three years old who, after a sharp fever and lassitude, developed when convalescent a crop of pustules on the face and neck. Later another crop appeared on the chest. When seen about a dozen were found disseminated over the body. One was found freshly formed and was about one sixteenth inch in diameter, pustular, surrounded by a red areola which disappeared at maturity. The walls of these pustules were so hard and dense as to recall variola. None of the pustules became umbilicated and they dried up without exudation. The dense walls, absence of exudation, occurrence in a well nourished child, and apparent freedom from communicability distinguish it from impetigo contagiosa It was impossible to make the decisive laboratory test.

The same author reports a case of

Mycosis Fungoides.

A woman in comfortable circumstances, about 45 years old, whose mother and sister died of phitisis. The history was negative in other respects. Four or five years ago a moist eruption appeared on the left arm and in a few months disappeared. At intervals this reappeared, was confined to the extremites and was uninfluenced by treatment. During the last year the entire skin became affected, tumors appearing recently and growing rapidly.

Considerable variety was seen in the way in which different portions of the skin were affected; in places there seemed to be excoviations, elsewhere branny desquamation, in others it was hypertrophied and on the face moist and weeping.

The tumors were never passive, but either were growing, suppurating or involuting. This peculiarity together with their cusion-like shape and their involving only the superficial skin are diagnostic of mycosis fungoides When these tumors break down they afterwards heal without leaving a scar. No treatment seems to have any effect on the disease but improved hygiene improves the general condition of the patient and lessens the disease somewhat in this manner.

Shortly before death pain became distressing and general emaciation took place and the tumors almost disappeared.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

Paralysis Following Tonsillitis.

In support of the statement that paralysis similar to that following diphtheria may arise subsequently to other forms of sore throat, the following cases are recorded by Bourges (*Arch. de Med. Experiment*, January, 1895): A child, aged 7, was attacked with sore throat, pyrexia, etc. There was no membrane, and the illness subsided in twenty-four hours. About a fortnight later he was again attacked, and this time distinct false membrane appeared on the fauces, but not for three days was there any lividity of the neighbouring parts. The glands in the neck were swollen. There was no albuminuria. A few days later the mother, who had constantly nursed the child, was also attacked with sore throat, and membrane formed on the right tonsil. The membrane in each case was examined, cultures made, and mice inoculated. None of these showed the Loeffler bacilli. Various streptococci and staphylococci were found, and some small bacilli staining by Gram's method. About six weeks from the last attack of sore throat the child developed convergent strabismus, paralysis of the soft palate, loss of power in the limbs, and general weakness.

Intestinal Obstruction in Children.

MONTI (*All. Wien. med. Zeit.*,) after discussing the causes and general symptoms of intestinal obstruction in children, and accepting in the main the views of Leichtenstern, gives the following points as those which are of value in forming an opinion as to the site of the obstruction: (1) In the lower part of the colon the first symptom of acute obstruction is painful colic, and the region of the abdomen in which the colic is first felt may afford some indication of the part of the colon obstructed. Vomiting does not occur until the colic has lasted for some hours or days; it is at first bile-stained, then becomes foul, and finally fæculent. Collapse sets in late; gaseous distension of the intestine begins in the colon, and at first it may be possible to make out that it is limited to the region occupied by the colon (flanks and epigastrium), but later the ileum also becomes distended, and the tympanities may reach a very high degree. In incomplete obstruction the symptoms are the same, but develop more slowly. Action of the bowels may occur, and be attended by temporary relief, especially of the tympanites. If the rectum be incompletely obstructed, constipation alternates with attacks of painful tenesmus, followed by the passage of small scybala. Circular constriction of the rectum causes the motions to be of small calibre. (2) Acute obstruction in the lower part of the ileum is attended with frequent attacks of painful colic, starting in the ileo-cæcal region. Each paroxysm of colic induces an attack of vomiting, the vomited matter being at first the contents of the stomach, but later fæcal. Collapse sets in early. The detension of the abdomen is most marked at first in the umbilical and hypogastric regions, but in time becomes general; it is not notably diminished by vomiting. At first several fæcal stools may be passed, but after a few days there is complete constipation. The quantity of urine is diminished after the first few hours or days, and there may eventually besup pression. When the obstruction is incomplete the colic may be as severe, and the movements of the coils of intestines perceptible. The degree of distension may vary greatly in a very short time, and this independently of a passage of a stool. The constipation, after lasting some days, may be succeeded by copious foul diarrhœa. (3) Acute obstruction in the duodenum or jejunum causes severe colicky pain, starting about the umbilicus and radiating towards the stomach. Vomiting comes on early, and is violent; the vomited matter is at first bile-stained, later it becomes foul smelling. Gaseous distension is slight, and is limited to the epigastrium. It may be very much diminished by vomiting, but collects again. The bowels may at first act spontaneously or after enema, but eventually there is complete constipation. Suppression of urine is established early. When the obstruction is not complete, the symptoms are similar but less severe. The colic is painful, and the vomiting, either in relation with the colic or independently, very frequent. The quantity of urine is dimished. There is no distension of the abdomen, and diarrhœa alternates with constipation. Monti considers that if a case is seen early much may be learnt as to the probable seat of the obstruction by observing the way in which the tympanites develops.

SURGERY.

The Surgical Anatomy of the Spine in Infancy.

Chipault and Daleine (*Rev. d'Orthop.*,) in the course of a second paper on the surgical anatomy of the infant, direct attention to the following points. The spine of the fœtus and newborn infant, taken in relation to the whole length of the body is longer than that of the adult on account of the slight development in early age of the lower limbs. The relative length of the different regions of the spine varies at different periods of life, whilst the relative proportions of the dorsel segment and the cervical and lumbar segments taken together vary but little during growth. The cervical segment, which at birth exceeds the lumbar segment, becomes relatively smaller with advancing age, until in the adult the

latter is one-third longer. Whilst in the adult the umbilious corresponds to the level of the third lumbar spine, in the infant it is opposite to the fourth spine or even lower. The base of the sternum corresponds in the infant to the top of the seventh cervical spine, instead of as in the adult, to the second dorsel spine. In the newborn infant the spinal cord descends but a little below the upper part of the spine of the first lumbar vertebra. Whilst in infancy the lower limits of the cervical and lumbar portions of the cord vary but slightly from those in the adult, the lower limit of the dorsel portion corresponds to the eighth, and not as in the adult, to the ninth dorsal spine, The cauda equina in the infant, instead of forming, as it does in the adult, a cylindrical mass which fills up the dural sheath, is arranged in two distinct processes occupying the sides of the canal and separated by an interval of from 3 to 5 millimetres in width, occupied by cerebro spinal fluid. The spinal canal might thus be punctured in the third or fourth lumbar space in the infant without risk of wounding the cauda equina. Laminectomy, it is pointed out, may be performed under much more favorable conditions on the infant than on the adult. In the former the laminæ may be easily resected, the fatty tissue around the dura mater is much less vascular, and the periosteum, which can readily be detached from the bone, is capable of throwing out fresh osseous structure, and of repairing the breach made during the operation in the posterior wall of the canal.

Suture of the Heart.

Del Vecchio (*Rif. Med.*,) as the results of experiments on dogs, concludes that suture of the heart in cases of wound is possible. At the recent Congress in Rome (1894) he showed a dog whose left ventricle had been wounded in two places (one penetrating into the ventricular cavity) forty days previously. The author had surtured the two wounds with catgut and silk, and the dog appeared at the time of exhibition to be in perfect health; it was killed on the forty-second day after suture. The apex of the heart was found firmly adherent to the thoracic parietes. Both wounds were firmly healed, and in one the scar could be seen on the endocardium, proving the penetration. An interrupted suture was found to answer better than a double continuous suture, as necrosis generally followed the use of the latter. Dogs present a special difficulty in these experiments, inasmuch as one has to open the pleural cavity to reach the heart. In cases of wound of the human heart Del Vecchio proposes the following operative procedure. Two longitudinal incisions to be made from the lower border of the third rib to the upper border of the seventh, the one along the lower margin of the sternum, the other 5 to 10 mm. inside the nipple line; these incisions to be joined by a horizontal one made in the fourth intercostal space. The fourth, fifth and sixth ribs and cartilages to be divided, and the outer cutaneous flaps turned up. The pleura to be separated and pushed on one side with the finger, exposing the pericardium, which is incised longitudinally. The wound is then united by interrupted sutures. Death in cases of wound of the heart seems to be chiefly due to pressure from the blood effused into the pericardial sac. Since this presure is also a check to further hemorrhage, it is a nice question whether operative interference may not do more harm than good as far as the hemorrhage is concerned. Paracentesis may however, be practised, to be followed, if necessary, by free incision of the pericardium. A short bibliography of the subject is appended. Fischer collected 376 cases of heart wound with a mortality (two to three minutes after injury) of 20 per cent. Death has been noted in periods varying from a few seconds to nine months after the injury.—*Br. Med. Journ.*

Suppurative Arthritis in Infective Disease.

Mauclaire (*Arck. Gen. de Med.*,) deals in this number with the following cases: (1) Acute rheumatism. Pyarthrosis has been reported, but it is probable that the suppuration was due to a secondary infection. True articular rheumatism must be distinguished from the pseudo variety. (2) Pseudo-rheumatism: In this class the author places cases in which the joint affection is the first local manifestation of the general infection. Sometimes these infections are intense and the lesion multiarticular; sometimes less intense, only one joint being involved; or the infection may be very attenuated, the joint lesion being periarticular in character. In this group should be placed the suppurative arthritis sometimes seen in the first few years of life without previous illness. Acute articular rheumatism, epipysial osteomyelitis tubercle, and syphilis must be excluded. Usually one joint is affected. The prognosis is favourable in these children under proper treatment. Suppupation in the pleura and pericardium has, however, been noted. (3) Gonorrhœa: The author says that at the present time it is difficult to say whether the distant lesion is due to the gonococcus, toxins, or a secondary infection. Sometimes the general manifestations of gonorrhœa are slight, sometimes they may be severe, resembling typhoid fever. The lymphatic system plays an important part in propagating the disease. These joint affections have by some been attributed even to a spinal cord lesion. Suppurative arthritis occurs in the acute stage of gonorrhœa, but sometimes later in neglected cases.

Treatment of Diffuse Purulent Peritonitis.

Herhold (*Deut. med. Wooh.*,) relates two cases in which recovery ensued after incision and drainage. (1) A patient, aged 54, was admitted with a strangulated hernia. An empty hernial sac was found on the right side and a piece of omentum and intestine on the left. After the intestine slipped back into the omentum discoloured and ill-smelling fluid escaped. The condition of the patient did not improve, and six days later the abdomen was opened along the outer edge of the left

rectus muscle; 300 c.cm. of stinking pus escaped. The intestines were felt to be glued together. The patient recovered. (2) A boy, aged 8, was admitted with signs of peritonitis with effusion. Later he became desperately ill. The abdomen was incised and drained 250 c.cm. of stinking pus escaping. The finger introduced into the wound felt coils of intestine glued together. Rapid improvement and ultimate recovery ensued. The cause of the peritonitis was not clear in either case. The author then gives the statistics of published cases of diffuse purulent peritonitis treated by incision. In the Berlin Charite 25 such cases have occurred, and of these 5 recovered, but the hopeless nature of the cases accounts for this small number; in 2 the peritonitis was due to perforation in enteric fever, in 9 to long continued obstruction, in 4 perforating intestinal ulcers, in 1 to a perforating gastric ulcer, and in 9 no cause was known. Purulent peritonitis which is part of a general sepsis is hopeless.

GYNECOLOGY.

The Influence of Ablation of the Ovaries on Metabolism

Curatulo and Tarulli (*Il Policlinico,*) publish a preliminary note on some experiments they have been making on this subject. They find that after removal of the ovaries there is a marked and constant diminution in the amount of phosphorus anhydride found in the urine. Bearing in mind the beneficial effect of ovaritotomy in osteomalacia, the authors conclude that the ovaries secrete some unknown chemical product capable of favoring the oxidation of the organic phosphates which furnish the material for the formation of bone salts. Consequently, when the ovaries are removed, there occurs a greater retention of organic phosphorus, and a greater accumulation of calcareous salts under the form of calcic and magnesian phosphate.

Results From Alexander's Operation.

Kummer (*Centralbl. f. Gynak.*) publishes statistics of 14 cases in which he operated, recording no results where the after-history is less than a year long. Four of the operations were for prolapse, and 10 for retroflexion. In all the 4 cases of prolapse plastic operations on the vagina were also undertaken, so that whether the result was due to the shortening of the round ligaments or to colporrhaphy could not be decided. In 1 case the prolapse, notwithstanding the combined operations, recurred; in 3, observed respectively 3 years, one year and a half, and 1 year, cure was complete. Of the 10 retroflexion cases, in 5 complete cure followed Alexander's operation; 3 seem cured, but are excluded as the after-history was under a year, whilst in 2 the displacement recurred. In both these failures there were adhesions affecting the mobility of the uterus, but it seemed so easy to draw the organ forward that Alexander's operation was preferred to hysteropexy. The latter is always safest when any adhesions exist. In the 5 completly cured cases, as well as in the 3 recently performed, all the uncomfortable symptoms, so prominent in many cases of retroflexion, disappeared; the uterus remained in its normal condition of anteflexion. One patient had been married for three years, but had never conceived. After the operation she became pregnant, and was delivered at term. The uterus remained anteflexed after involution. Kummer modifies some of the details of Alexander's operation according to circumstances.

NEWS AND MISCELLANY.

Reduced Rates to Baltimore.

The B & O. R. R. Co. will sell excursion tickets to Baltimore from all points on its lines east of Ohio River at one fare for the round trip. Tickets will be sold July 16th and 17th, valid for return passage until August 5th. For time of trains and full details, call or write nearest B. & O. Agent.

The rate from Philadelphia will be $2.80 and correspondingly low rates from other points.—3t.

Summer Vacation Tours.

The Baltimore and Ohio R. R. Co. now has on sale at all its offices east of the Ohio River a full line of tourist excursion tickets to all the lake, mountain and seashore resorts in the Eastern and Northern States and in Canada. These tickets are valid for return journey until October 31. Before deciding upon your summer outing it would be well to consult the B. & O. Book of "Routes and Rates for Summer Tours." All B. & O. Ticket Agents at principal points have them, and they will be sent post paid upon receipt of ten cents by Chas. O. Scull, Gen'l Passenger Agent, B. & O. R. R., Baltimore, Md.—2t.

Low Rates to Denver.

The B. & O. R. R. Co. will place on sale at all ticket offices on its lines east of the Ohio River round-trip tickets to Denver, Colorado Springs, Manitou and Pueblo, for all trains of July 2, 3, 4, 5, and valid from starting point on day of sale and good returning from Colorado points July 12 to 15 inclusive. The rate from Philadelphia will be $44.75, and correspondingly low rates when from other stations. Tickets will be good via St. Louis or Chicago.—3t.

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ORIGINAL ARTICLES.

THE PROPHYLAXIS OF MEASLES.*

DR. REINHARD CASPAR,† GREIFENBERG, GERMANY.

I consider it a pertinent question whether our age, which has won the battle with smallpox and cholera and has now thrown down the gauntlet to diphtheria, is justified in keeping its hands folded in its lap when the spread of measles is considered.

In the twelve years, 1882 to 1893, inclusive, there were reported in the district of Stettin, 36,990 cases of measles, with 1090 deaths—2.94 per cent. In 1890, the death rate was only 1.2 per cent.; in 1884, 7.1 per cent. The epidemic which invaded the southern half of the Greifenberg district in 1884 was benign in the beginning; afterward, in Triglaff and surrounding localities, it became grave, not only through the severity of the disease itself but on account of sequelæ. The epidemic in Hokendorf, in 1886, was at first benign but became suddenly malignant, seven deaths occurring in two weeks. In 1887, at Pflugrade, nine out of twenty-two patients died, a mortality of 40 per cent. These observations indicate that the policy of "laisser aller" is not justifiable, and place the prophylaxis of measles among the first of medical duties.

In the good old days, the healthy brothers and sisters of a measles patient were placed in the same bed with him, with two objects in view, first to limit the sickness in a family with several children to a month; secondly to protect the children against a later and, perhaps, a severer infection. I have found spirited opponents of vaccination who have advocated this principle of immunizing against measles. With vaccination, according to the latest statistics, 13 have been lost out of two million and, in return, the serious epidemic disease has been almost exterminated. By purposely infecting with measles, we run the risk of losing from 3 to 7 per cent., even up to 40 per cent. of older children. What have we gained? Nothing, for measles epidemics can repeat themselves after ten, seven or even three years. A colleague has cited a case in which a man had four attacks of measles, the last and most severe at the age of seventy.

The course of the epidemic in Stettin was grave. 507 localities were invaded. Since the extension of the disease is due to a contagium, it is self-evident that it depends on human intercourse, not, in general, on the intercourse of important business but, because measles is a children's disease, on the intercourse of children from a few neighboring villages. Measles is only occasionally contracted on account of

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railroad journeys, and the epidemics very seldom make great strides. Far more frequently, the progress is slow from one village to one or more neighboring villages. The creeping of an epidemic is well illustrated in that of 1887 in Greifenberg. It began in Zirkwitz in April and progressed, for the most part, from west to east. After a period of four weeks, it broke out in the next village, Gross Zapplin, on the highway to Treptow. From Treptow, it proceeded to Robe and finally reached Camp where the epidemic died out in February 1888. The measles occupied ten months in going about fourteen miles.

That a disease so clearly contagious as measles spreads so slowly is due, chiefly if not exclusively, to the fact that extension occurs from school children, who do not travel so much as grown persons; that it has a period of incubation rather long as compared, for example, with cholera; that epidemics spread equally at every season; that wind and weather have no influence; that drainage has caused no movement from west to east, and, also, no opposite movement. All these facts show that measles is a purely contagious disease in the sense that Koch's cholera and Behring's diphtheria are, and that, therefore, Pettenkofer's theory completely fails. Sixteen cases are cited in which the beginning of an epidemic could be traced. In the great majority of instances infection occurs by personal contagion, but it may rarely occur through third persons or objects. I will not cite cases from literature but will refer to cases of my own.

In 1883, Miss K., of Greifenberg, aged 23, received a letter from relatives in Berlin, informing her that the children were sick with measles. She immediately burned the letter but was taken sick with measles twelve days later. Measles was not prevalent at Greifenberg at the time. In the village of Dummadel, measles was prevalent, involving, among others, the family of the teacher. In the neighboring village Broitz, which was not on the same highway, the teacher's children took the disease. They had not been away from home, there had been no communication between the villages except, perhaps, by travelling butchers. There was brought daily, however, a mail bag from the post office in the former place to that of the latter, both offices being in the teachers' houses. I might remark that the disproportionate frequency with which primary cases of measles, scarlet fever and diphtheria occur in the families of teachers, and in the school house, may well be explained by this method of conveyance. It might be objected that, in this case, the families of postmen ought to afford a considerable contingent of such primary occurrences, as is not the case. But grown persons are not very susceptible to these diseases and, in cities, postmen's children have nothing to do with the mail bags. In the country, on the contrary, the post office is in the teacher's sitting-room or parlor and the little satelites of the office greet the arrival of the carrier with joy and are present at the emptying of the mail bag so that, if contagion is possible through letters, it may very well occur in this way. I believe it proper to remove the post office from the school house whenever thus endangered by the outbreak of infectious disease. This action should be possible without recourse to the superior postal officials.

There is no doubt but that infectious diseases are often communicated at funerals. Marriages, to which children are almost always admitted, more frequently lead to the propagation of measles than do funerals. Children in charge of herds, going from one village to another, may easily carry measles. Travel from country to city for the purpose of making purchases, the great church festivals and the movements of day laborers are other unavoidable causes of infection. Instruction preparatory to confirmation affords a marked opportunity for infection. Children from villages thus far immune, come in contact with sick and infected children from other places and themselves become carriers of infection. It is manifest that the same may be said of confirmation. For example, measles was prevalent in Rörchen and the district physician made the following note. "At the same time, I would call attention to the fact that confirmation instruction, especially the blessing on Palm Sunday, must certainly be postponed, since the children of Jaedersdorf then come with their relatives to Rörchen." Later, when the epidemic appeared in Jaedersdorf, the same medical officer observed. "Referring to the origin of the epidemic, it is interesting that the postponement of the blessing from Palm

Sunday, according to my recommendation during the epidemic of measles in Rörchen, was not carried out, and that the disease broke out in Jaedersdorf exactly fourteen days after Palm Sunday." I will add that the disease was very severe in Jaedersdorf and killed two children. Was it really impossible to postpone the confirmation three weeks? With the clergy we often find sanitary rules opposed by a deep-rooted indolence. It is not merely indolence, however, but a sentiment that assumes to be a firm trust in God and, after all, is nothing but the grossest fatalism. "If children are to have the disease, sanitary rules will do no good." On a journey through the desert, Mahomet found a man encamped for the night without having tied his camel. Mahomet asked him why he had left it loose. "I have given the camel into the care of Allah!" To this the prophet replied "Next time, my son, first fasten your beast and then commit it to the care of Allah." If this saying of the prophet, which contains the quintessence of all sanitary principles, is accepted by his followers at present, then it must be a genuine pleasure to be a medical officer among the Turks.

Almost all the opportunities for the spread of measles, namely the movements of day laborers, the hiring out of children to tend herds, confirmations, the majority of marriages, the journeys of the peasantry to make purchases in the cities, occur with remarkable agreement at a certain time of year, namely at Easter. If measles is really a purely contagious disease, an increase in its frequency ought to follow the Easter festival. I have prepared a table showing the average prevalence, as compiled from statistics of twelve years, of measles for each week of the year. This shows that a maximum was reached eight weeks after the return of the country workmen, and six weeks after the average time for Easter.

[Note. The maximum is about 1360 cases. There are two other marked elevations of the curve, which reaches 1100 just before the workmen's return, and 1225 in the 49th week of the year. The chart gives one the impression that the prevalence of the disease follows a semi-annual fluctuation, reaching minima about the first of March and the first of October; reaching maxima about the last of May and the first of December. A. L. B.]

One might at first think, considering the duration of incubation, that the maximum would occur fourteen days after Easter, but we find the explanation if we bear in mind the development of a school epidemic. At first, one child is taken sick; he infects four or five others who are taken sick about fourteen days later; from these, the whole school is infected. Thus it comes about that in the country the school becomes empty usually four weeks after the beginning of the first case. In the progress of the epidemic whereby, for example, four villages become infected, the culmination of the epidemic is naturally delayed two to four weeks more, that is, six to eight weeks after the real origin. So too in cities of four to six thousand inhabitants we find the height of the epidemic eight to ten weeks after the beginning. In still larger cities this point varies according to the conditions in the various districts and in the individual schools.

According to these facts, the prophylaxis of measles recommends itself without need of further argument. If from our increased knowledge of the cause and routes of infection of cholera we have reached practical results in the management of this disease, we must contend against a feeling of hopelessness on account of the marked communicability of measles. The long period of incubation affords time for action, the bearers of infection are children whose movements we can easily control—contrast the difficulty of controlling the movements of commerce and business—and the contagium has but slight viability outside of the body.

We have seen that a conveyance of measles by objects (letters) is possible. Still, this is not a frequent cause or it would be more often noted in a collection of the statistics of a large number of epidemics. That measles is so seldom conveyed by third parties but almost always by direct contagion, is opposed to the ubiquity of the germ. It is demonstrated that measles has not a particularly high grade of contagiousness, for a child in the height of the infective stage (i.e. during the three days before the appearance of the eruption) can infect only four or five out of 80 or 100 children crowded into the same room for hours at a time. It remains for the four or five new foci of disease with especially favorable circumstances in the school

room, to accomplish the infection of the rest of the children, though they are susceptible. It is highly improbable that, as has been generally believed, healthy children may be infected on the streets by inhaling matter coughed or sneezed up by patients.

The time of incubation is nine to eleven days. To this is added the duration of the prodromal stage, three days. In general, then, the rash is to be expected 12 to 14 days from the time of exposure. The infectiousness begins with the stage of prodromes, that is with the catarrh. Neither the rash nor the scales after the eruption are infectious when implanted on healthy skin. It is probable that the germs are lodged directly on the mucous membrane of the nose and throat by inhalation of matter sneezed and coughed up.

The process of infection of a school already described can, in my opinion, be limited. The first case of measles in a community, occurring in a person of school age, should cause the closure of the school. Then we must wait and see how many children have been infected by the first. We must not only wait for the prodomal symptoms—for they can not be distinguished from those of an ordinary catarrh—but for the appearance of the eruption. For example, if four or five other children are taken sick within fourteen days, they are to be kept away from school, along with others that may show prodromal symptoms, and the school re-opened. If isolation on this line is successful, we can ward off an invasion of measles for a decade or longer. If it fails, there has been the loss of instruction, which would not occasion the same inconvenience as when, in the course of an epidemic, the school has been closed spontaneously and the medical officer has had to maintain the closure for two or three weeks more, until the epidemic had subsided. There is no doubt that the closure of the school when half or more of the pupils are sick, has ceased to be a prophylatic measure against the spreading of the disease, which then continues to extend. Likewise, I consider it quite proper to continue the interruption of instruction after a school has closed spontaneously. It is not right that children should begin school again as soon as they are free from fever and eruption. Bronchial catarrh continues in many cases and, particularly in tubercular children, there is a cough for a long time, so that the air of the school room is vitiated by the convalescents from measles. Furthermore children are rendered liable to sequelæ. Even healthy children easily become sick when attending school in winter, especially if the paths are not passable. Thirdly, that convalescents from measles may not suffer from conjunctivitis it is important that they should not return too early to their studies. In the military levies are found whole yearly lists whose members have corneal malculæ dating from measles.

Closing school has also a certain educational value. In the management of measles, the country people, the teachers, the parish magistrates will learn what is meant by an infectious disease. They will learn more than from epidemics of diphtheria and scarlet fever, which are less typical. Localities in which schools have been closed on account of measles, will, at the outbreak of another infectious disease, cooperate with the medical officer. At the first alarm of an epidemic of measles, the medical officer should be sent for without delay. He should not depend on written orders, but should make a thorough personal examination as to the time, place and circumstances of the outbreak—a task which the general practitioner dislikes to undertake.

I pass over the general methods of combatting epidemics, but one consideration forces itself on our attention on account of the usual manner of infection of measles through the fine masses dispersed in the air by coughing and sneezing. We naturally think of some means for disinfecting the air. Formalin, which is nontoxic in efficient dilutions, perhaps a lysol spray; a steam of vinegar, or any one of the other sprays that have been discarded as useless may be effective against measles since the bacillus is very notional as to its soil, cannot be cultivated artificially, and so perhaps can be limited in its development by altering the conditions of the respired air or the nasal secretion.

Finally, the question still must be considered, "What do we gain when we protect a locality from an epidemic?" Glance at the chart of the Greifenberg district. It shows that the epidemic of 1887, which traversed the northern half of the district, could have been avoided if the disease

could have been stamped out in Zirkwitz. Nor can we say that these localities would probably have succumbed to an epidemic of measles in a few years. In our district, quite a number of places have remained free from measles during the twelve years, 1882—1893. Moreover, the reports do not indicate that the longer places are protected from measles more severe does the disease become. On the other hand, an epidemic of measles may repeat itself within this period. Fifteen localities were revisited by measles in periods varying from two to ten years after the first epidemic, the average being six years.

The last epidemic in Traptow differed from the one three years previously in affecting principally the little children. Half of the primary pupils were out of school, only a few from the lower grades of the city school, a few individuals from the girls' school and none from the gymnasium. The epidemic of Wegerim is interesting in that instruction was interrupted from March 27 to May 1, 1891, and from January 17 to February 4, 1893, on account of measles. It is, therefore, not only a weak consolation but an actual error to believe that a locality is protected from a second epidemic for a decade.

Away with the old misconception that we do children a kindness in exposing them to measles. For the danger to which we subject them, we have no compensation. There is no law of nature according to which measles must revisit a place every seven, fourteen or fifty years. It is a preventable disease. None of the observed epidemics are like a breeze filling a locality as if from the sky, nor like a fog ascending from the ground. Each has proceded from one or two patients whose appearance on the scene has been an entirely accidental occurrence. The individual cases may be partly avoided, partly rendered harmless by vigilant prophylaxis. Meantime, the theory of an inevitable, periodic return of an epidemic of measles, collapses.

FRACTURES OF THE SKULL.*

EDMUND C. BRUSH, A. M., M. D., ZANESVILLE, O.

Ten years ago I published a report of ten cases of fracture of the skull. These cases had been treated by immediate operation, by secondary operation and on the expectant plan. The deductions pointed clearly to the propriety of immediate operation, provided any depression could be detected.

Since that time I have seen two cases of supposed fracture and seven cases of fracture of the skull, not including four cases in which death was immediate. These nine cases will be reported as fully as time will permit.

Case I. S. B., colored, age about 50 years, was struck on the head with a club. When I saw this patient, soon after the receiving of the injury, he was conscious and suffering considerably from shock. An examination revealed a scalp wound five inches long, extending upwards and backwards from the inner end of the left eyebrow. On exploring the skull beneath the cut a crack was found corresponding in length to the scalp wound. There was no depression or symptoms of compression or paralysis. The scalp wound was sewed up and in a few days the case went from under my care. Four weeks from the time of the injury I was again sent for and found the man delirious, with a high fever, and in answer to an inquiry regarding pain he placed his hand over the cicatrix. I saw him again in a day or two only to find the symptoms aggravated. Going away from home, I did not see the case until after death, it occuring six weeks from the time of receiving the injury.

The post-mortem examination showed, at the lower end of the above described scar, a very small opening, about the diameter of a pin, through which pus es-

*Read before the Ohio State Medical Society, 1895.

caped. On removing the scalp, the crack in the skull was plainly visible. One inch from the lower end of the crack a second crack branched out, and, extending in a semi-circle joined the first about two inches from the starting point. Union had taken place, but at the lower end of the fracture there was a small hole corresponding to the one in the scalp and of the same size. This same hole also extended through the covering of the brain. In this region the dura mater was thickened and adherent to the brain. The front half of the left side of the brain was bathed in pus. On opening the left hemisphere an abscess three inches long and one and one-fourth inches in diameter was found occupying the anterior, and a portion of the middle lobes. So far as could be discovered, this abscess did not connect with the exterior of the brain. There was no depression of the skull. The fracture involved both tables.

Case II. T. D., age 22 years, was struck on the head with a bottle in a bar-room fight. Skin not broken. This injury was received between four and five o'clock in the afternoon. No ill effects were apparent and he was arrested together with the others concerned. After spending the night in prison, he went home. About noon he became sleepy and laid down. During the afternoon his heavy breathing attracted attention and an effort was made to waken him, but it failed. When I saw him, with another physician, he was in the arms of death. He died thirty hours after receiving the blow. A swelling just above the left ear, under which a depression in the skull could be felt, made the cause of death apparent.

On entering the scalp, at the post-mortem examination, we found a depressed fracture one and one-half inches long by one-half inch wide. Some irregular pieces of bone, corresponding to the opening in the skull, were driven into the brain. Upon removing the calvarium we found a large, oval shaped clot of blood occupying the left parietal region. This clot measured four inches from front to back, and extended from the crown down into the middle and posterior fossæ of the skull. It filled a pint cup two-thirds full. On further investigation we found a small sharp-pointed spicula of bone sticking into the middle meningeal artery. This no doubt, explained the delayed symptoms of compression. The blood had slowly but steadily leaked out from around the piece of bone and gradually produced the large clot. Had surgical help been called in time and the head operated upon, a life might have been saved. This was a case of traumatic ingravescent apoplexy.

CASE III.—F. K., age 15 years, was found in an unconscious condition, lying on the floor of a manufacturing establishment. He died a few hours after, without regaining consciousness. The attending physician found no cause of death.

In making the post-mortem investigation, I found, upon a superficial examination of the head, a large depression in the skull at the upper portion of the left temple. The removal of the scalp—which was not cut by the injury—exposed a comminuted, depressed fracture of the skull, circular in form and as large as a silver half-dollar.

The question arises, "Would an immediate discovery of the injury followed by a prompt removal of the depressed pieces of the bone have saved the life?"

CASE IV.—L. K., age 4 years, received a kick from a horse. The wound in the scalp began just above and at the middle of the right supra-orbital ridge. It extended upwards and somewhat outwards for a distance of three inches.

The horse had just been shod and the kick had buried the toe of the shoe in the skull. Fragments of bone were driven into the brain, lacerating its coverings. This case was seen at once. Unconsciousness was complete and the shock severe. Without delay the sunken pieces of bone were removed, along with considerable brain substance. The scalp was so bruised and lacerated at the upper end of the wound that immediate union did not take place at this point. Before the head was entirely healed the boy fell from a porch and broke his left thigh. He recovered nicely from both injuries, and, excepting the scar on the forehead, shows no indications of either. At no time was there any paralysis, and in 24 hours consciousness had returned.

Case V. E. T., age 15 years, received a large, irregular, compound fracture of the left forehead by a blow from a stone. For a moment the boy seemed dazed, but he did not lose consciousness. The dura

mater was lacerated and some brain tissue lost. There was no paralysis. A few hours after the injury an anæsthetic was given in order to remove the depressed pieces of bone. The patient was nearly ready for the operation when he stopped breathing. Artificial respiration, electricity and the injection of stimulants were resorted to, and, after nearly an hour's work, the boy could breathe without assistance. The operation was postponed until the next day. Before making the second attempt a hypodermic injection of morphine and atropine was given and no trouble ensued. The pieces of bone were removed, and in a week the patient was sent to Dayton, O., into the care of Doctor C. H. Humphreys, of that city. The Doctor writes me as follows:—"The boy recovered after some delay in getting rid of a small pulsating fungus growth from the seat of injury, which when removed was disposed to return. After deep incision of it and cauterization it closed over."

Case VI. F. D., age 7 years, was run into by a horse and thrown head first against the end of a fence rail. The tapering but blunt end of the rail penetrated the crown of the head to the left of the median line, for over an inch. This occurred in the evening and I saw the boy the following morning. He was then conscious and had no pain. Paralysis of the right arm and leg was complete, but he had control of his bowels and bladder. After cleaning out the fragments and destroyed brain tissue, there was a deluge of blood, seemingly from every part of the cavity. A prompt stuffing of the cavity with gauze stopped the flow and warded off what looked like impending dissolution. A relative of the boy gave a good idea of the size of the hole by saying, "You could drop a hen's egg into it." The gauze was removed in three or four days, and no further trouble was experienced from hemorrhage. The scalp had been so lacerated by the blunt end of the rail that it could not be made to completely cover the opening. This healed by granulation, but, in time, the brain, not having much opposition, protruded through the skull but under the scalp. This tendency to hernia was obviated by making a round lead plate about three inches in diameter, and one-half inch thick in the middle, gradually tapering to the edges on one side, the other side being left flat. The flat side was applied to the hernia, and the plate so encased in a bandage as to hold it in place. This was worn for several weeks and cured the hernia. The paralysis gradually left, and the last report from the boy was to the effect that he was in school, bright and active as ever.

Case VII. S. S., age about 40 years, received long scalp wounds across the occiput, the crown and on the left forehead. They were probably made by a pick handle. Under the wound on the forehead there was a fracture of the skull. I saw this man within an hour after the receiving of the injury. He had bled profusely and was partially conscious, with no paralysis. As he had been drinking it was hard to tell where the effects of the liquor left off and those of the injury began. The depressed pieces of bone were removed and the dura mater found to be only slightly cut. The hole in the skull was circular and would admit a silver quarter. All of the cuts healed without suppuration, and the patient made a speedy recovery.

Case VIII. S. R., about 22 years of age, was found lying in an unconscious condition alongside of a railroad track. The only evidence of external injury was a large "bump" on the top of his head. Both pupils were contracted; paralysis was complete, and the indications pointed to a fracture of the skull, although none could be detected by external manipulations. A long half-circular incision was made around the posterior part of the swollen portion of the scalp. A large "scalp lock" was raised, but no fracture found. For ten days this man remained unconscious, with paralysis of the extremities, bowels and bladder. At the end of that time he began to improve, and so continued until he was up and out. Noticing that his mind seemed dull, I spoke to a friend regarding it and attributed the mental deficiency to the injury. The friend replied that "he had as much sense as ever he had and he never had much."

The incision made in this case proved, so far as external appearances could, that the conditions present were not due to depressed bone. There was evidently compression either from within or without. The history of the case, the complete paralysis present along with the other symtoms, made me to expect to find depressed bone beneath the swollen scalp. This

point would still be in doubt but for the investigation made.

CASE IX. J. M., aged 16 years, was struck with a billiard cue just above and a little posterior to the left ear. This happened at noon of February 11th, 1895. The primary effects of the blow were slight, but five hours afterwards, while on his way home, the boy became semi-conscious and was helped home and into bed. He was soon soundly sleeping and the family thought the condition was due to drink. At three o'clock that night the patient's bed-fellow was disturbed by the loud breathing and tossing of the boy and called the lad's father. The father knew that the boy had been hit and at once connected his condition with the blow. Dr. J. C. Crossland was sent for and arrived at five in the morning. The following were the conditions, as reported by the Doctor:—"Left pupil dilated, pulse irregular, heart actien violent, breathing rapid and stertorous with puffing of the cheeks on expiration, frothing at the mouth, delirium and frequent epileptiform seizures, profuse sweating, temperature 103°." At eight o'clock I saw the case with the attending physician, and continued to see it almost daily for a month. The only local evidence of injury to the head was some swelling and discoloration of the scalp above the left ear. Dr. Crossland, during our first consultation, raised the scalp at this point but there was no injury, at least externally, to the skull. It was evident that inflammation had begun inside the skull. The coma was increasing and the restlessness continued. The head was rolling from side to side with a continual effort to burrow in the pillow. By night the right pupil was contracted and immovable; the temperature was 105°. The second or third day the pupils became dilated, but otherwise there was little or no change. The bowels and bladder were not controlled from the first, or for three weeks following. The symptoms on the fourth day were somewhat better, but on the fifth day his condition became aggravated with paralysis of the left side of the face, and the left pupil was drawn outwards. The evening temperature was 106½°. On the seventh day he had several severe chills. On the tenth day it became evident that the inflammation had followed the optic tract into the left orbit. On the fourteenth day the ball was opened and the distention relieved by evacuating the pus; the eye healed, leaving a good stump for an artificial eye. Three weeks after the injury, symptoms of pyæmia developed, followed by abscesses on the right elbow and hip. These were opened without delay. The delirium continued for three weeks and then gradually subsided, until at the end of six weeks the boy was rational. The abscesses all healed, and the boy steadily but slowly improved. The emaciation was extreme; from a stout, rugged coal digger, he had gone down to a living skeleton. Eight weeks after the injury and just as the attending physician was about to discharge the case, an abscess formed at the lower portion of the right lung. Some bulging of the intercostal spaces beneath the scapula was noticed and the pus let out at that point. The boy also coughed up a large quantity. This gradually subsided and now, three months from the date of the injury, the patient is fast regaining health and strength, with his mind unimpaired.

The foregoing cases present many different phases of fracture of the skull and the result therefrom. All of those operated upon recovered, and in each case the operation was performed without delay and without any regard to the symptoms present. The one idea was to remove all pieces of bone that impinged upon the brain, whether the brain resented the pressure or not. Due attention was given of course, to the physical condition so far as it was influenced by shock. The idea that "in children the toleration of the brain to pressure is such as to justify delay in elevation of the fragments unless alarming symptoms supervene" is probably true, but what is to be gained by waiting? Prompt action will probably prevent alarming symptoms and dangerous secondary complications.

In the operation reported, the trephine was not used. With an elevator and a pair of sequestrum forceps, much can be accomplished. This is not said in the way of depreciation of the trephine. It is an instrument of untold value. The anæsthetic used was the A. C. E. mixture.

There is no need of repeating textbook literature on rules and methods for operations on the skull. How to prepare the patient for the operation, how to operate

and how to treat the cases after operation are details familiar to all. There is, however a new idea being advanced or experimented with. Perhaps it might be well to say that an old idea is being revived in a new form. To find some hard substance with which to replace the bone removed has been a source of much thought in the past and it is likely that the near future will solve the problem. This may be Senn's decalcified ox-bone, disinfected celluloid plates, or it may be the bone removed, or even transplanted pieces of skull.

In looking over the literature on the subject, I was forcibly struck with the following, found in *Bell's Surgery*, 3rd volume; edition of 1796—nearly one hundred years ago:—

"In the management of fractures of the skull attended with depression, the indications are:—

1. To discover as exactly as possible the site, the course and the full extent of the fracture.

2. To obviate the effects of the injury done to the brain by elevating or removing all the depressed parts of the bone.

3. To endeavor to complete the cure by the application of proper dressings and attention to the after treatment."

PHLEGMASIA DOLENS.*

J. CAMPBELL, M.D., SEAFORTH, ONT.

REPORTS OF TWO CASES, BOTH ENDING FATALLY; THE ONE FROM SUPPURATIVE PHLEBITIS, THE OTHER FROM EMBOLISM.

I was called upon, on the 27th of October, 1884, to attend Mrs. D., æt. 39 years, in her ninth confinement. I learned that she had been lying in bed for ten days with what she called her "sore leg," and upon examination found that her left leg exhibited the worst case of varicose veins without the surface being broken that I had ever seen. I learned that she had some trouble at the previous confinement, when the friends were told by the physician in attendance that it would probably go hard with her if she should become pregnant again. From the description given I would say that the difficulty on that occasion must have been of the nature of phlegmasia dolens.

Upon this occasion the whole leg was swollen and dotted over with small tumors larger than a pigeon's egg which upon examination were found to be the tense varicose veins ready to burst.

She was five or six hours in labor but came through it fairly well without the aid of instruments. There was no flooding. The child was born alive. I remained the usual time after delivery and, as I lived nine miles from my patient, I gave her particular directions as regards cleanliness; urged her to lie in bed longer than usual on account of the leg; and advised her to have it bandaged before rising. I then left, hoping all would be well, but was recalled upon the fourth day, the messenger saying she had taken chills followed by fever, and that she was quite ill.

I found my patient with a temperature of 105°, pulse 120 and somewhat compressible. The milk had been secreted, and the lochia was free and sweet. I examined the leg and found it swollen and painful, the femoral vein being like a whip-cord and the inguinal glands tender and enlarged. The skin was tense and glazed, and at places, the veins were near the bursting point.

I told the friends that it was a case of phlegmasia dolens, or what in common parlance is known as "milk-leg." I raised the leg, ordered hot fomenations, and prescribed quinine and ammonia with whiskey and milk. I syringed the vagina with a hot 1-40 carbolic lotion; ordered the clothing to be changed every day, as had been done since delivery; enjoined fresh air and sponging the surface of the

*Read at the meeting of the Huron Medical Association.

body, and then I left. This was on October 31st. Next day the husband called for medicine and informed me that she was no worse. I visited her on the following day, also on the fourth, sixth and eighth days. Expecting the case to be a tedious one I resolved to visit the patient only on alternate days.

To condense the report, I would say that, contrary to all expectations, the case went on from bad to worse. The milk was suppressed, the lochia became scanty and of bad odor, and the leg swelled until it was twice the size of the other one. What was still more serious, abscesses to the number of over a dozen formed along the course of the femoral vein. These I lanced freely and ordered to be sponged with carbolic lotion every three or four hours. Linseeed meal poultices covered with powdered charcoal were applied and changed after each sponging. The bowels had been kept open from the first, but the motion continued unhealthy and had a bad odor throughout her sickness. She had a succession of chills followed by a high temperature, sometimes reaching 106°; then came profuse sweatings, with a dry, brown tongue and other symptoms of pyemia. The face now wore an anxious expression, the pulse ran up to 150, delirium supervened and, finally, she sank into a comatose condition and died in a state of exhaustion.

This was the first and only case of suppurative phlebitis, or what might be technically termed peri-venous cellulitis, which I ever had in a practice extending over a quarter of a century. I had given a hopeful prognosis up to the time of the formation of pus in the veins, but after that I felt that "chances and war were against us." I had no literature on the subject, but treated the case on common-sense principles,—though I find at this distance I could not have done any better.

Case II. I was called on the 29th of January last, to attend Mrs. A., aged 31, in her fifth confinement. I was only half an hour in the house when she was delivered of twin boys, both alive. The second was born about fifteen minutes after the first There was one large placenta, or rather the two were so intimately connected that to all appearances there was but one. It was nearly an hour after that that the after-birth was expelled, and then there was more than the usual amount of blood lost; so much so that I remained with her another hour compressing the uterus with my hands. Ergot had been previously repeatedly given.

I was told next day, that after I left she had lost so much blood that they were about sending for me. I found her somewhat pale, both pulse and temperature were normal, though the pulse was moderately compressible. I put her on the compound syrup of hypophosphites; told them to change her every day; wash the genitals and keep the breast empty when milk appeared, and said I would not call again unless sent for.

On the fifth day I was called in haste by the husband, who said his wife had had a severe chill and was now much fevered.

When I reached her bedside I found that the temperature was 106½°, pulse over 120, and she complained of severe headache. The breasts were swollen, hard and lumpy. I found that they fed the children and allowed the milk to accumulate in the ducts. The lochia was not suppressed and was perfectly sweet; there was no tenderness over the womb nor any signs either of inflammation or puerperal fever. As a precautionary measure I used the uterine douche with hot carbolic lotion; gave ten grains of phenacetine to reduce the temperature, and prescribed ten grains of quinine every four hours. I instructed them to empty the breasts, and ordered the nurse to keep the children at them. I was not long home when the husband called me back, saying that his wife had taken another chill. I visited her late in the evening and found the temperature 102°, which change we attributed to the medicine. Next day, the sixth after confinement, I saw her morning and evening, and found the temperature still above the normal, though in other respects she was doing fairly. I expected to find her fever nearly gone if the milk in the breasts had been the sole cause of the trouble. The temperature, on the contrary, changed from 101.½° in the morning, to 102.½° in the evening, notwithstanding that she was getting ten grains of phenacetine and twenty grains of quinine every day. The breasts were kept empty and the bowels open.

On the evening of the eighth day, the patient complained of pain in the right elbow, but nothing was to be seen. On

the evening of the ninth day, she complained of pain in the calf of the left leg, increased upon pressure. There was also tenderness over the left groin on deep pressure.

As the temperature had been ranging between 100°, and 102½° in spite of the medicine, I suspected that she might be taking phlegmasia dolens, and told the friends so. I remarked that the next day would clear up the diagnosis. At this time the legs were exactly similar in appearance and of the same size. Next day, however, the left leg and foot were swollen, the glands in the left groin enlarged and tender, and the femoral vein could be felt hard and round like a whip-cord. This was the tenth day and the diagnosis was clear. The leg was slightly raised, hot fomentations of hops and poppy heads were applied, and she was put upon twenty minim doses of Tr. Fer. mur. four times a day. The quinine and phenacetine were still given at night, and her strength was sustained by liquid nourishment given at short intervals, especially milk and whiskey, beef tea and egg-nog. The leg did not long remain clear and shining, but soon began to diminish in size and to pit upon pressure. The temperature, too, went down to 100°, and after that to the normal. The patient did not complain of pain. The bowels were kept open by Cascara Sagrada. The pulse was seldom over 90, and after a time became normal. All of the symptoms pointed towards a mild case. Her strength, too, increased; her appetite returned and, in short, she was doing so well that I visited her only every second day.

Thus the case progressed from the 10th until the 15th day after delivery. She said she felt well enough to get up. Her friends felt annoyed to think that a woman so well should have to lie in bed from three to six weeks, as I had told them, hence they asked for a consultation to decide that point. On the morning of the 16th day after delivery, and the 6th from the day the limb began to swell, Dr. Bethune examined the patient and pronounced her, as far as he could see, out of danger. She was particularly well; she had no pain; the tongue was clean, the temperature, pulse and everything else were perfectly natural. The swelling was well down, the leg pitting freely upon pressure. Her strength was greatly increased and she was cheerful. Time and rest, the doctor said, were all that was required.

The consultation took place about ten A. M. At 2 P. M. the same day she complained of pain in the other leg, which was relieved by rubbing with turpentine and oil. The pain returned near eight o'clock the same evening, when the attendants rubbed it again; in doing so they turned her over on the left side, and even had her sittting up in bed. Suddenly she turned purple in the face; writhed and twisted as if in pain; turned her head to one side, and died. The friends thought she had taken a fit and sent for me in haste. The right leg had not swollen, and the swelling in the left leg had decreased considerably. I gave it as my opinion that death had taken place from embolism, a clot having been carried to the right heart and thence through the pulmonary artery to the lungs, cutting off the circulation in that organ. Had she lived no doubt she would have had the same disease in the right leg that she had in the left, with a very tedious convalescence.

Her death indeed was more than a surprise. It might be likened to a ship going down as she hove in sight of the harbor, with a glassy sea beneath her and a blue sky above, and not a cloud in all the horizon.

Remarks: (I) The swelling in both cases began at the periphery. The first case lost power over the limb; the second did not. The first experienced severe pain; the second had comparative immunity from pain.

(II) I feel confident that both veins and lymphatics were involved in both cases; the veins being inflamed, the lymphatics obstructed.

(III) In my opinion the phlebitis was produced by the precipitation of fibrin by the action of a septic agent which had either been developed in the blood or had made its way into that fluid.

(IV) As to the predisposing causes of the first; besides the hyperfibrinotic state of the blood in all pregnant women, the varicose veins, I believe, were the great cause of the trouble which ended so disastrously.

(V) In reference to the second; besides the condition of the blood already mentioned, and a moderately varicosed condi-

tion of the veins not previously referred to, I believe that the "head and point of offending," so to speak, was the loss of blood sustained at confinement, still further weakening an over-taxed and nervous system.

(VI) The modes of death were different: the first dying from pyemia; the second from thrombus producing asphyxia from arrest of circulation in the lungs.

(VII) In conclusion, I would say that the pathology of this interesting disease is still somewhat obscure and much has yet to be found out in reference to it.

DEAFNESS FROM INTRA-NASAL DISEASE.*

JOHN A. THOMPSON, M.D., CINCINNATI, O.

Diseases of the ear are more intractable to treatment than those we encounter in any other department of medicine. Late cases of chronic catarrhal otitis media in either of its forms are regarded by experienced otologists as being almost hopeless under modern methods of treatment. From this hopelessness arises the constant suggestion of new procedure directed to the ear itself in the hopes of at least partially restoring the function which is so important to the happiness and success in life of the individual. A few observers, notably Swineburne, turning from the attempt to cure the already established condition, have sought to lessen the number of hopelessly deaf by seeking the cause and devising methods for prevention. Swineburne carefully examined the nose and throat in a thousand cases which presented themselves at the Harlem Eye, Ear and Throat Infirmary, complaining of deafness. Where deafness resulted from disease of the middle ear, his conclusions are that in 95 per cent. of all cases the primary lesion is in the nose or naso-pharynx.

Just how disease in these organs produces chronic inflammation in the tympanic cavity has been a question of dispute. Some experienced writers claim it is due to the direct extension of inflammation by continuity of tissue. In structure, the tympanum is only one of the accessory sinuses of the nose, though it differs entirely from that organ in function. Others have thought we could trace the resultant ear disease secondary to obstructive lesions in the upper respiratory tract, to imperfect aeration of the middle ear. Still other authorities have thought that the interference with the circulation in the internal and middle ear by the inflammatory and neoplastic changes in the nose or naso-pharynx was the cause of the secondary disease. While the battle has been fierce and the flow of ink free in this word war, it is probable that all are right; that each method plays a part in the production of secondary diseases in the middle ear.

While I have seen many cases where the secondary deafness could be accounted for and the cure understood from the well-known relations of nasal and aural diseases, I have encountered others that are not susceptible of explanation by any of the known facts in rhinology or otology. I wish to report three of these cases, chosen because they are dissimilar in many of their features. They suggest that there is a relation not yet understood, between the healthy condition of the nose and naso-pharynx and the sense of hearing. In all of these cases there has been a serious and irremedial impairment of the organ of hearing, yet in all the ability to hear has been greatly increased by restoring the nose and throat to their normal condition.

Mrs. S., aged 31 years, married when 16 years old, has suffered from diseases of the generative organs since the birth of her first child. She is very nervous, weak and anaemic. She suffered from pains in the chest, headache, cardiac palpitation, rapid pulse and dyspepsia. These symptoms could not be relieved by ordinary constitutional treatment. She was referred to me by her physician, Dr. W.

*Read before the Ohio State Medical Society, 1895.

H. DeWitt, for treatment of the upper air passages, with the hope of relieving these intractable symptoms which he believed were secondary to the local disorder.

The patient had marked hypertrophic rhinitis with a deflected and thickened septum. The thickening was in the right nostril. There was also a marked nasal-pharyngeal catarrh. The right ear was deaf to all ordinary tests. She could not hear the watch on contact. She could not hear the conversational voice. She could hear loud voices only as an indistinct noise. She gave a history of this ear as follows:—Seven years before, while suffering greatly from her uterine trouble, the ear became inflamed and was intensely painful for several days. The drum was finally perforated, the pain diminished with the free discharge of pus from the ear. She had had occasional attacks of acute suppuration in the middle ear from that time.

Inspection of the ear showed cicatricial drum membrane with evidences of old perforations. There was no suppuration at this time. The ossicles were firmly bound together by old inflammatory adhesions. The condition revealed by inspection was so bad that no attempt was made then or subsequently to improve the hearing by treatment of the ear. The hypertrophic rhinitis was treated by the usual method and the spur on the septum was removed March 13th, 1894. The headache and neuralgia of the chest which the patient had supposed were all due to her uterine trouble, were entirely relieved within six weeks after this operation. The rapid pulse and cardiac palpitation yielded to the combined effect of the operation and heart tonics administered internally. The patient began to improve in health and strength and in a short time felt better, weighed more and was better able to do her work than she had been for years. About ten months after the operation she discovered that hearing had returned to the supposed incurably deaf right ear. A careful test of this organ in April, 1895, shows that the patient is able to hear the conversational voice fairly well, and hears the watch, which before the operation was not heard on contact, two inches from the ear.

F. J. H., aged 18, had scarlatina when he was 13 years old. The scarlatina was complicated by purulent otitis media in both ears. The drum membrane and ossicles of the right ear were completely destroyed. In the left ear three-fourths of the drum membrane was destroyed and the ossicles remain bound together by cicatricial adhesions. With every cold the patient caught, there would be suppuration from one or both ears. I saw him first in March, 1894. At that time he heard a conversational voice one foot distant, could not hear a watch on contact, and could not hear a whisper at all. There was no appreciable difference in the hearing powers of the two ears. He was about to lose his situationas clerk because of his inability to carry on a conversation with customers in the store.

Examination of the nose and throat showed hypertrophic rhinitis and a large spur on the septum in the left nostril. There was a complicating naso-pharyngeal catarrh. After treating for a few days the acute inflammation that was present when I saw him, I removed the spur and cauterized the hypertrophied turbinated bodies so as to give him free breathing room through the nose. The left ear was suppurating when I first saw him, but this suppuration readily yielded to the dry treatment. The patient was under treatment six weeks and was dismissed with the ability to hear a whisper three feet and to distinguish ordinary conversation so readily that he still retains his position as clerk. The first of December, 1894, he caught a severe cold, and with the resultant swelling and inflammation of the nose and throat, his hearing became again seriously impaired. Ten days of local treatment cured this attack, and with the return of the nose to the normal condition the hearing distance for the whispered voice again became three feet for either ear.

Mrs. F. L. J., aged 35, has been deaf from childhood. I can get no distinct history of the cause of this deafness. She had repeated attacks of acute purulent otitis. In her earlier years she was treated by a number of good otologists, who succeeded in checking the suppuration but did not prevent the total loss of hearing power in the right ear. She had been constantly under the care of a competent man for three years before I saw her. She had visited him once or twice a week all this time to have the left ear inflated by the Politzer method. This inflation gave

temporary relief from the tinnitus aurium and improved the hearing temporarily. In spite of this treatment the deafness was progressive, and at the end of three years she was worse than at the beginning of this period. Examination of the ears showed the right ear with only a perception of loud sounds. Inspection of the drum showed only a mass of cicatricial tissue, through which nothing could be seen to throw any light on the condition of the middle ear. The left ear showed a badly retracted drum membrane, with cicatrices where old perforations had healed. Loud voice heard only one foot, watch not at all in left ear. Examination of the nose showed a bad hypertrophic rhinitis, and in the right nostril, at the junction of the perpendicular plate of the ethmoid with the triangular cartilage, there was an enchondroma with a broad base nearly an inch in diameter and so thick that it completely filled the upper and anterior portion of the right nostril. As all known methods of direct treatment to the ear had failed to benefit the deafness, I decided to remove the enchondroma and to restore the lumen of the nostril by cauterization of the hypertrophied tissue in the turbinated bodies. The operation was made under chloroform, October 11th, 1894. I cut the nasal branch of the ophthalmic artery in the first incision for the removal of the tumor. This complicated very much an operation always difficult to perform on account of the free bleeding hiding the field of operation. I removed the tumor as rapidly as possible and packed the nose with cotton saturated with McKenzie's styptic solution. Recovery was further complicated by an attack of follicular tonsilitis which began three days after the operation. The patient was already weakened from loss of blood and shock, so the attack of tonsilitis was unusually severe and prolonged. The immediate effect upon the hearing was of course disastrous. As soon as the patient was able to resume her visits to the office, the hypertrophied tissue in the turbinated bodies was destroyed by the galvanic cautery as rapidly as this could be done without exciting a severe inflammation. The patient remained under treatment for four months and was dismissed with hearing distance for the watch (left ear) of nine inches. She hears the ordinary conversational voice with ease. She had never been able to hear a clock which had been given her as a wedding present eight years before, until after this operation. On awakening one night, she was very much alarmed by its ticking though she was lying in bed across the room from the mantel on which the clock stood. Up to the present the improvement has continued, and I have no doubt the hearing will be better a year hence than it is today.

These three cases present a few similar features. There was in all marked nasal obstruction from hypertrophy of the normal tissues and from the growth of abnormal structures. The condition of the ears in all was such as to offer no hope of cure by treatment of the ear itself. All were benefited so they could hear ordinary conversation, the best test of hearing power, by treatment of the nose.

In the first case reported, the ear was never treated, either before or after the operation on the nose, yet as a result of this operation hearing is restored to an ear which to all appearances was hopelessly deaf.

In the third case, the patient had been under the constant care of competent men from childhood to mature life. In spite of this care, the hearing power was entirely lost in one ear and so far diminished in the other ear that common conversation could not be heard. Yet, in this case, the hearing power is restored to the ear by restoring the normal luman of the nostrils. During the time she was my patient, the ear received no treatment.

It might be said the result in these cases was due to the fact that normal respiration and aeration of the middle ear through the eustachian tube was restored. While this is a possible explanation, I do not believe it to be the true one. In the third case the eustachian tube had been kept open by constant treatment, yet the deafness was increasing. The tube remaining open, no attention was paid to it while I was treating the nose, yet there was a remarkable gain in hearing power. It certainly will not apply to the second case, where in one ear there is no drum membrane at all,and in the other ear only a remnant. The recurrence of the deafness months afterwards when the nose became inflamed and swollen, and the prompt restoration of good hearing power by treatment of the nose, is an additional demon-

stration of the controlling influence that, in this case at least, the nose has on the power of hearing.

While I do not pretend to explain the influence which brought about the deafness or the cure in these cases, there is a practical conclusion to be drawn, upon which we can act even if we do not understand thoroughly the theory or the principal on which our action is based.

The practical deduction is that no case of supposed incurable deafness is really so unless the nose and naso-pharynx have been examined, and treated if necessary, by a competent rhinologist.

BACTERIOLOGY.

There is no country in the world where such rapid advances have been made in this new department of science as in our own. It is the characterization of the American mind to glean the best thoughts of the world and utilize them in the most practical possible manner. This is the secret of the rapidity with which the various boards of health have established under State supervision and in almost every town and city laboratories with the single view of increasiug the health of their community. The intelligence with which they have incorporated into their work what is best in the discoveries of the scientists of the world and utilized it in the prevention of disease and the relief of suffering, is characteristic of the rapidity and practical working of the American mind. There is no question about the correctness of the statement of Prof. Adami that outside of Berlin the best bacteriological work in the world is done in the United States.

There is but little, if any, question at the present time that it is the product of the bacteria and not the microbes themselves which form the deadly poison of disease or those harmless changes in food so much prized by the epicure. The result depends upon the benign or malignant character of the microbes, one rearranging the molecules of tissues into the deadly ptomaine which paralyzes the vital forces, and the other being perfectly harmless. And yet the benign and malignant bacillus resemble each other so closely that even the expert with the microscope sometimes fails in differentiating them. Upon this subject Prof. Adami, one of the most accurate bacteriologists on this continent, says: There is scarcely a malignant microbe which has not its benign counterpart under the microscope. Bacteriologists do not rely on the microscope exclusively, but on the whole history of the germ which they have under observation. Its behavior in different media, such as broths and milks, it one test. Its action upon animals, such as rabbits and guinea pigs, is another. Of course those who have an every day acquaintance with the bacilli of tuberculosis or diphtheria, soon get to recognize a certain variety and fixity of form under the microscope which makes them all but sure that they either have or have not what they are looking for. Physicians who have but little practice with the microscope will generally find it safer in difficult cases involving more or less doubt, to obtain the aid of an expert.

By making pure cultures of this bacillus and giving them to the dairymen of his vicinity he won their lasting gratitude, for they found that the culture introduced into their cream brought out the sharp, fragrant taste of the Danish butter, and increased its market value by two cents a pound. Some of the most popular of the German cheese, as, for instance, the Roquefort and Gorgonzora cheese, owe that peculiar taste so much prized by epicures to the benign bacillus which sets up the green decomposition which adds so largely to the value of thoroughly ripe cheese. We see the work of this bacillus in the green mold on old shoes and decaying citrous fruits, which is precisely the same as that used by the German peasants for the past two centuries in the manufacture of this variety of cheese. They make this mold, however, by pouring acid upon bread. After standing for a few days the mold appears, which they dry and powder, and then add to their cheese while still in the curd. It is in watching the work of Nature that students are able to isolate the cause and work out the results with such positive certainty as to make them important factors in the care and prevention of disease and in those great industries which quicken the pulse of commerce.

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SATURDAY, JULY 20, 1895.

EDITORIAL.

ANTITOXIN THERAPY.

Sufficient time has now elapsed and clinical observations have been extensive and thorough enough to allow the medical profession to arrive at conclusions approximately correct as to the value of the toxin theory of the etiology of infectious diseases, and the efficacy of that theory as applied in serum therapy. This much must be allowed—assuming that the statistics offered us are as reliable as the average statistics accepted in similar questions: the antitoxin treatment has markedly reduced the mortality rate of diphtheria; and no serious complications or sequelae, directly due to the antitoxin remedy, have characterized the treatment.

At the XIII Congress of Internal Medcine, recently convened at Munich, Heubner, of Berlin, referred to the effect of the new remedy upon the mortality from diphtheria in that city, which had been 39 per cent. in 1,332 cases immediately preceding the use of antitoxin, and 21 per cent. in 1,390 cases (nearly the same number) since the beginning of the serum treatment. Out of 181 cases of pure diphtheria of which he had personal knowledge, all in which the treatment had been applied on the first or second day recovered, and only two of those in which the injections were first administered on the third day had a fatal termination.

The record in the Kaiser and Kaiserin Friedrich Hospital at Berlin was brought down to March 15, by Dr. Baginski. During the twelve months ending on that date 525 cases were treated there with antitoxine. For the four preceding years the average annual mortality had been 41 per cent., but for these 525 cases it was reduced to 15.81 per cent. The prevailing epidemic was of a virulent character. This is indicated by the fact that while the serum treatment was discontinued during the months of August and September, owing to a temporary exhaustion of the supply of serum, the death rate rose to 52 per cent.

Prof. Widerhofer of Vienna, relating his experience with the new remedy in the hospitals of that city, reported that the mortality had been cut down more than one half.

Von Ranke of Munich declared that the mortality in the hospitals of that city had been reduced more than one-half since the introduction of antitoxine.

The figures introduced are, to be sure, from European records. But it must be remembered that the investigations originated and the discoveries were made in Germany, and that in Europe serum therapy has been subject to the severest tests over the longest period of observation. Furthermore, the results recorded are fairly representative of the reports coming from all quarters where the treat has been used to any extent. The consensus of opinion is as stated above.

So much for the practical results of serum therapy in diphtheria. And bacteriology, the youngest offspring of medical science, must be credited with making one of the most notable of all contributions to medicine.

As to the vital processes, chemical and physiological, concerned in the contest between the bacillus and phagocyte, the toxine and the anti-toxine, we can, as yet, only theorize and continue to investigate. We know enough, however, to realize that the subject is not so simple as at first conceived, and that we are only preparing to explore another unknown field whose boundaries may prove limitless. As Buckmaster (*Science Progress*) has said:

"If it can be affirmed that a disease is caused by the invasion of specific microbes, or their products, attempts to destroy these would be a strictly scientific procedure; in other words, attempts to disinfect the living body. Quinine, salts of mercury, iodine, or salicylic acid are powerful disinfectants, and also valuable drugs frequently employed in the treatment of diseases produced by the spread of bacteria in the body. In order to accomplish a disinfection of the living body numerous experiments have been made, but the results were unfavorable, until Behring and his colleagues Knorr and Boer announced that this was possible in certain diseases, such as anthrax, tetanus, and diphtheria; trichloride of iodine especially was found to possess a distinctly curative power. Behring later conclusively showed that in several diseases, among which diphtheria was included, serum yielded by the blood of an animal rendered artificially immune exerted no bactericidal action upon the bacillus of the disease, but was apparently capable of destroying the toxins produced by the bacillus. Antitoxic bodies are therefore presumably present in the blood of animals which are made immune, and serum from such animal can be both protective and curative; an already developed disease can be permanently arrested by the introduction of serum charged with antitoxins.

"Since Behring's discovery it has been established that the serum of immunized animals is prophylactic and curative for many other diseases besides diphtheria. For many infective maladies, among which pneumonia, cholera, typhoid, hog-cholera may be mentioned, this has been abundantly proved by the researches of F. and G. Klemperer, Issaef, Pfeiffer, Sanarelli, and Metchnikoff. The universal application of Behring's theory of antitoxins is, however, limited, since in tetanus and diphtheria the toxins of bacilli are neutralized or destroyed, but in other diseases the serum protects not against infection with toxins, but against infection with living bacteria. In this case it is possible that the cells of the organism, even if they do not ingest and destroy the invading microbes, as Metchniks affirms, are roused or stimulated so as to oppose the spread of infective micro-organisms or the products of these throughout the body. In the case of protection against diph-

theria the antitoxin which appears is therefore to be looked upon as the product of living cells, or as a metabolite occurring under special conditions, one of which may be the stimulation of the cell by the toxin.

"A partial solution of the therapeutic effects which follow injection of antitoxic serum in cases of diphtheria may be that the material introduced does not act directly upon the toxin, but indirectly does so by operating as a stimulus to the cells of the organism, which are then capable of producing chemical bodies which destroy the toxin, and such substances may be antitoxic in character. This conception is largely due to Roux, and under his direction Calmette, Phisalix, and Bertrand have shown that no specific action can be claimed for antitoxic serum. These observers have discovered that the serum of animals which have been rendered immune against cobra poison is antitoxic both in the body and *in vitro*. In the latter case, on warming the mixture to 70°, the antitoxin is destroyed, the toxin remaining unaltered, from which it may be concluded that the toxin remains active side by side with the antitoxin. Moreover, the serum of animals immune to rabies or tetanus is powerfully antitoxic to cobra venom. From these observations it would appear that the products of cell activity which accumulate in the blood of animals immune to tetanus, diphtheria, or cobra poison, are all of an antitoxic character similar in nature, and the view that antitoxic serum is specific for a definite bacillus or its products must be modified."

ABSTRACTS.

INSUFFLATION OF SODIUM CHLORID INTO THE NASAL CAVITY FOR RELIEF OF PAIN.

Dr. William M. Capp, of Philadelphia, writes (*Med. News.*):—

By the insufflation of sodium chlorid has been accomplished the entire and immediate relief of acute pain in the face and head in a short series of cases that it may be useful to report. The procedure is simple, harmless, and no more annoying than would be a pinch of snuff, and the medicament is commonly at hand; the effects have been very satisfactory.

In five cases of faceache from decayed teeth, in which the pain did not yield to the usual domestic applications, the pain disappeared at once upon the contact of pulverized table-salt with the mucous membrane of the nose, blown from an insufflator. There were no notable characteristics; the cases were simply such as are daily met among those who do not take proper care of the teeth. The patients were of adult years, two of them men and three of them women.

Another case was that of a woman in middle life, a cook by occupation, always having had general good health, and being strong and hearty of frame. Her face was much swollen and painful, and her condition was pitiable, the suffering having deprived her of food, sleep, and rest for three days and nights. Such was her story, and she appeared to be unstrung, nervous, and quite unfitted to attend to her work. Evidently "a cold" had been taken that painfully affected the nerves of the face. An examination disclosed the presence of six neglected and decayed teeth, sadly needing the dentist's attention. They could not, however, have been filled in the condition of her mouth and face at that time. The insufflation startled her by its unexpected sensation, and her aspect for the moment was one of pain and

bewilderment. She was directed to walk across the room, which at once recalled her to her surroundings. She said that the treatment had not given pain, but had taken her by sudden surprise, which passed off, and with it all pain had left her. Upon going home she ate a hearty meal, and after a few hours went to bed and slept all night. Having occasion to be at the house in which she lived, I saw her almost daily for a week afterward, and the pain at no time returned, and the swelling and sensitiveness subsided without other treatment.

In a number of cases of severe headache without regard to cause, relief has been satisfactory and immediate upon the application of this remedy; also in two cases of earache that did not present indications for other special treatment.

A young lady with a furuncle in the external auditory canal presented herself, suffering great pain, with the distress and disturbed nervous condition that usually accompany this painful malady. In the fraction of a minute after the insufflation there was complete relief from pain, and the temporary discomfort from the application, which was attended with great suffusion of the eyes and nose, was deemed trifling by the patient as compared with the complete relief from pain that had before been suffered. There was entire freedom from pain for about four hours, after which it returned, but in much less degree. Subsequent appropriate treatment for the disorder aided in complete recovery, which was reached without any return of the distress endured previous to the salt-insufflation. Some weeks later the same patient applied for relief from the pain caused by the irruption of a wisdom-tooth, which had made her sick and miserable day and night. She elected to submit to the same treatment as before, which was administered, and gave the same prompt and happy result. She slept well that night and had no return of the pain.

A similar treatment was given to a woman who complained of intense pain in the top of the head. The case was not taken up critically, as at the time temporary relief only was sought, but a partially developed history seemed to point to uterine disease. Immediate relief followed the insufflation of the salt, and comfort, complete and satisfactory, was secured for many hours. Subsequent inquiry showed that when the pain returned it was in much less degree, and other treatment applied to the cause of the trouble removed it. This patient was one who some months before had been promptly relieved of a distressing faceache from a decayed tooth, as previously noted, and did not hesitate to have the treatment repeated upon her.

A fellow physician during a chance conversation complained of disabling discomfort from eye-strain from overuse of the eyes in reading and work with the microscope. Upon recounting to him some of the foregoing cases he asked to have an application of the treatment, which was accordingly given. His testimony confirmed that of the patients before related. He said that the headache and painful feeling of strain of the eyes immediately left him, and the shock of surprise at the contact of the salt with the nasal mucous membrane. though not painful, was not pleasant, though probably not more so than insufflation of other powder to one not accustomed to it.

In all cases from two to four grains of finely ground table-salt were used in a glass nose-insufflator, with a short rubber tube attached with which to blow by the mouth the medicament into the nasal cavity. The charge is blown just after the patient has emitted the air from the lungs in respiration. In the case of the physician referred to, the insufflator not being at hand, a tube of paper was improvised, and served the purpose equally well. It is worthy of notice that with the exception of the physician none of the patients knew the nature of the material which was applied.

Originality in the use of this mode of treatment is not claimed by me. The first account of its application, so far as I know, is related in the *Edinburgh Medical Journal* for January, 1890, by Mr. George Leslie, as occuring in his own practice. He made a successful use of it in the treatment of obstinate, long-standing, and recent cases of neuralgia, headache, faceache, earache and toothache, and in bronchial asthma; and recounts that in many cases relief was permanent. The present note of experience is confirmatory of his paper upon the subject. The procedure would seem to offer a quick relief from pain in a class of cases that profoundly appeal to sympathy, but often baffle the best skill.

PILOCARPINE.

The drenching perspiration which has accompanied the humid atmosphere and the scorching heat of the past few days, has perhaps suggested to our mind the similimnm of the only drug capable of producing like effects, jaborandi and its alkaloid, pilocarpine. For this drug the medical world is indebted, as it is for many of its most efficient remedial agents, to America. It is a native of the eastern province of Brazil, and grows in the form of a shrub to the height of some ten or twelve feet. Introduced into the pharmacœpia in 1880 it has shown new powers and an ever increasing range of action as it has been closely studied. Brunton speaks of it as stimulating the peripheral terminations of efferent nerves going to glands, and first stimulating, then paralyzing the efferent nerves going to structures composed of involuntary muscular fiber. From its stimulating action on secreting nerves, it produces enormous secretions of saliva and a drenching perspiration from all the sweat glands. This perspiration usually lasts two or three hours, and is so abundant that often from a pound to eight pounds are lost, together with the salivation, in a single perspiration. Of course this excessive loss of fluid is followed by a feeling of debility, sometimes requiring alcoholic stimulants or digitalis or strychnine to tone up the failing heart. It acts not alone upon the skin but upon the mucous membrane of the mouth, nose, throat, intestines and bladder. The physiological action of the drug points to a wide range of troubles in which we should expect marked remedial results. In almost every form of dropsy, including ascites, anasarca and hydrothorax, the rapidity with which it eliminates the water through the skin and kidneys naturally directs our attention to this drug when milder measures fail. In uræmia, where there is a partial or entire suppression of urine, and even in puerperal convulsions arising from this cause, its prompt action upon the skin and mucous membrane not infrequently relieves the system of the poison and re-establishes the action of the kidneys. The dry skin, so often seen in Bright's disease, and the intense itching, the result of the senile condition of old age, receive prompt relief. Moliere recommends in that stagel of acute Bright's disease marked by scanty urine, dyspnœa, anasarca, etc., the external application of an ointment of nitrate of pilocarpine, of the strength of 1 to 1 or 2,000 of white vaseline. Of this three ounces are rubbed on the skin over the whole of the trunk, which is then covered with a thick layer of cotton wool held in place by a bandage. If not uncomfortable it need not be changed till the next day, and can be repeated daily for ten days. He finds under this treatment a profuse diaphoresis, a marked increase in the amount of urine, a decrease of albumen, sometimes salivation, and always a rapid decrease of anasarca. In acute cases the change is very marked, and even in chronic cases he finds better results from the remedy than from any other agent.

The action of the drug on the mammary glands, is similar to its action upon the salivary glands, and its stimulating action upon these glands, when given in small doses, just sufficient to produce its physiological action without excessive sweating or perspiration, classes it among the best galactagogues we possess to increase the flow of milk in the apparently barren breast.

The action of pilocarpine upon the eye points to numerous troubles of that organ in which it may be of use. Brunton classes it with the pupil contractors, muscaine and nicotine, in stimulating the ends of the oculo-motor nerve which supply the circular fibers of the iris, while eserine produces the contraction of the pupil by acting directly on the circular fibres themselves. Following out this line of action oculists have found marked benefit from pilocarpine in glaucoma, in paralysis of accommodation, in hemorrhage into the retina and vitreous, and Gillet de Gradmont looks upon it as a specific in commencing atrophy of the optic nerve. It will be apparent that pilocarpine and atropine are physiological antidotes of each other, and each can be used to check the effect of the other upon the drug that is exerting an unsafe action.

One of the most interesting effects of

pilocarpine is its power of stimulating the growth of the hair and changing its color. Several cases are on record, reported by careful observers. Dr. Judson narrates a case of a lady seventy years of age, whose hair and eyebrows had been white for thirty years. Jaborandi was prescribed to relieve the itching and dryness of the skin occasioned by Bright's disease. The eyebrows and the hair of her head grew dark in patches, until at the time of her death, which occurred about two years after she had commenced taking the remedy, they were quite black. A new growth of black hair also appeared on the scalp under the old hair. Numerous cases are reported by different physicians, all of good standing, where the use of pilocarpine has been successful in restoring the growth, even in bald places. These cases are sufficiently numerous and well attested to warrant a trial of the drug in the treatment of the scalp. Bird fanciers have various preparations they give to birds to change their color, as cayenne pepper in changing the color of canary birds to orange, but there is no well attested fact of any drug but jaborandi having changed the color in the growth of the human hair. —*Ed. Med. Times.*

THE MEDICO-LEGAL ASPECT OF TUBERCULOSIS OF BONE.

Dr. Andrew L. Fulton in a paper read before the Southwestern Assoc. Railway Surgeons (*Railway Age*) says:—The subject which I have chosen at this time is one of great interest to us all, as I see in the near future trouble for railroad surgeons in the matter of tuberculosis of bone. A few years ago we were confronted, and very much perplexed, over the subject of railway spine, or "concussion of the spine," as defined by Professor Erichsen of London, England. His monograph was wide spread in its effect; attracted a great deal of attention, and gave no end of trouble to the railway companies and led to much controversy in the profession.

Through the study and untiring effort of railway surgeons the Erichsen idea was exploded, but not until it had cost the railroads millions of dollars for imaginary ailments and the malingering of patients, to say nothing of the just claims incident to injury of the spinal cord. Erichsen himself, within the last year, has acknowledged his error, but not until it had been thoroughly exposed through the instrumentality and energetic work of the railway surgeons.

In presenting this paper on this occasion I do not desire to be understood that as railway surgeons we are here to devise ways and means to protect railway corporations; not by any means; nor do railway officials expect it of us. It is neither the duty, the function, nor desire of the honest railway surgeon to protect any company against the payment of just claims; but it is his duty, as well as the duty and privilege of every other honest surgeon to protect it, as we would an individual, against the false claims of imposters, people who are parasites upon corporations, as well as upon the community. The subject I am about to discuss is one that I believe in the near future will prove as troublesome and dangerous to the railroad companies and other corporations as railway spine has in the past, I refer to tuberculosis of bone.

I have recently been connected with two cases of tuberculosis of bone; one of them I have simply had the history of, and presume that suit will be brought against a corporation to recover damage. The case in question is one in which a man received an injury of the ribs on the left side. According to his statement he was laid up for a couple of weeks, treated by a competent physician and promptly recovered. He was entirely well, as far as he knew, for eighteen months. About that time a swelling appeared in the immediate vicinity of the point where he says he received the injury. Some time later, two or three weeks, he complained of pain in the crest of the ilium on the other side of the body from that where he received the injury to the ribs, and still later pain in the thigh. He developed tuberculosis of the ribs, crest of the ilium and femur about the same time. The lesions are now all discharging freely. He attributes his trouble to the injury he received nearly two years ago.

The other case, in which I was called as an expert witness, is one in which action was brought by the parents of a child against the Missouri, Kansas & Texas and the Missouri Pacific Railway companies jointly. The following is a history of the case as proven in the trial: About the first of July, 1891, a collision occurred at the crossing of the M. K. & T. and Missouri Pacific railroads. The engine of the M. K. & T. train struck the rear coach, the chair car of the Missouri Pacific, overturning it into a deep ditch. The child was in the arms of its mother in the chair car. They were both taken out of the car without any apparent injury to either mother or child. At the examination of the passengers the child was observed in its mother's arms making no complaint. They went west that afternoon, some fourteen miles, to their destination, the home of the child's grandmother. The mother, on the following day, in washing the child discovered two "black and blue" spots, as she called them, at a point which she indicated to be about the fourth and seventh spinous processes of the dorsal vertebræ, both about the size of a silver half dollar. According to her testimony and that of her husband and mother, these spots remained there for several weeks and finally disappeared. The child's health, as shown by the testimony, was very poor ever after the accident. During the next spring following, about March or April, 1892, the mother said she discovered a small lump on the child's back, at a point near where the black spots appeared, but said nothing about it until some time later. During the month of November, 1892, this lump was shown to a physician, and, as he testified, was about the size of a peanut and somewhat tender. Prior to this, or soon after the accident, another physician saw the child on account of its delicate health, and it was treated by him for malaria diagnosed by the mother. Nothing had been said to him about the injury the child had received, and he therefore made no examination of it. From the last named date, November, 1892, the child grew rapidly worse, and at the time of the trial of the cause, the latter part of September of this year, this child was in a most deplorable and pitiable condition, with one of the worst forms of Pott's disease of the spine I ever saw. I may state in this connection that the child has never had any treatment worthy of the name, as no regular or qualified physician has had it in charge or been permitted to treat it.

It was alleged in the plaintiff's petition, and proved as I have related, that the accident in the railroad wreck was the exciting cause of the trouble and upon that hypothesis they claimed damage. The defendants in the case entered a general denial, but there was no way to prove that they were not wholly responsible and pecuniarly liable, except by medical testimony.

The fact that two trains collided in broad daylight, near midday, at a point where an accident should and could have been avoided, left the companies nothing for defense except what they could produce by medical testimony alone. At the solicitation of the attorneys for the roads, Mr. Richards of Ft. Scott, and Mr. Sedwick of Emporia, Dr. Outten of St. Louis, wired me to appear in behalf of the Missouri Pacific and M. K. & T. jointly. I found the local profession of Ft. Scott, where the case was pending, except Dr. Aikman, the companies' surgeon, all on the side of the plaintiff, and committed in that direction. On obtaining the history of the case and the conditions present, I found the doctors of one mind, fortified by all the works at their hand on general surgery. They were all ready to admit, and that upon authority, that Potts' disease of the spine, which the child had, was a tubercular disease; that there was a predisposing cause, tubercular, and that the exciting cause was the accident received in July, 1891, by reason of the two above named points of ecchymosis over the spinous processes related in the testimony of the plainiff.

In case of the child, B. W., referred to, I took the position that in a child six and a half months old, receiving an injury over the spinous processes, and subsequently developing tuberculosis of the bodies of the vertebræ, the disease could not have resulted from the injury as an exciting cause. I produced a skeleton and showed the jury the position of the processes, and the position of the bodies of the vertebræ in which we have the tubercular disease, taking the age of the child at the time of the accident into consideration and therefrom demonstrated the impossibility of the direct result claimed in the petition. At

that early age the vertebral column is nearly all cartilage, and the separate portions of the vertebræ are united by cartilage in three places, and the bodies are not united to the pedicles until the end of the third year. These facts taken into consideration, with the blow from the chair in the chair car, which the mother testifies hit the child on the back, would seem to point to an injury serious in its nature to the spinal cord, if indeed, any had resulted. It may be noted that a direct blow upon the spinous processes of a child, young as this one was, would have produced paralysis of the extremities below the seat of the injury at once.

I also showed the impossibility that an injury not sufficient to produce any lesion of the cord should have caused extravasation in the bodies of vertebræ at the alleged point of traumatism, The laminæ, the union of which forms the spinous process, do not fuse till about the second year, and the neurocentral suture or junction of body with the pedicle does not give us any union till the fourth year. Therefore, if it were true that trauma is ever the exciting cause, as is freely claimed by most of the authors, it could not obtain in the case under discussion, because there could be no direct connection between the point of alleged injury and the body of the vertebræ.

The jury in the case, very correctly, in my judgment, accepted the theory of the defense, and wisely found in their special finding that the Pott's disease developed in the child was not connected directly or indirectly with the alleged injury, while they brought in a verdict of five hundred dollars ($500) for the plantiff as "smart money" for wounded feelings, etc., which was just.

SEROTHERAPY IN SYPHILIS.

However valuable mercury may be in syphilis, it is very certain that it does not afford immunity against a possible attack of the disease. It then becomes necessary to discover an agent for the relief of syphilis from the new researches upon the method of the future, viz., serotherapy. It is not illogical to suppose, on the one hand, that the microbe of syphilis secretes, like other infectious diseases, a toxine which can confer immunity, and one may ask, on the other, if animals are not refractory to syphilis, because there are found in their blood chemical and other substances, by contact with which the microbes of syphilis and their products of secretion are annihilated. Hence to apply to syphilis the knowledge which in other infections has been crowned with success, is only to take one step, and that difficulty has been quickly surmounted. Injections with animal serum were made in 1891 at the "Hospital Saint Louis" in the service of M. Fournier, and under the direction of Dr. Feulard. The results of these experiments were embodied in a communication made by Dr. Feulard, and in a recent treatise by Dr. Fournier upon the treatment of syphilis. It may be said in a general way that the injections had a favorable effect. MM. Feulard and Fournier insist upon their nutritive value, and they act principally by improving the general condition. M. Feulard makes the inquiry, whether the injections of serum have a specific action, or if it is not as rehabilitating adjuncts of specific medication that they bestow their good effects. M. Fournier thinks too that it is by supporting the organism and modifying its integral nature, that the injections expedite the cure of syphilitic lesions. Both of these experimenters believe that it is a medication which renders real service where the nutrition needs to be improved. They employ the serum of the dog and the horse, the dose at first two centigrammes, afterwards one, every second day. Tommasoli has also experimented with this method, and in different memoirs he has reported the results obtained in 1892. He used the serum of the sheep and the calf, and in larger doses than those employed by MM. Fournier and Feulard. He injected from two to eight cubic centimetres daily, and did not exceed fourteen injections. The results were satisfactory, and the syphilitic indications rapidly disap-

peared after the sixth injection at the latest. Very recently Dr. Istomanoff reported to the "Societè Mèdicale du Caucase" the good effects he had obtained from serotherapy in syphilis by the method of Tommasoli. Here too the secondary manifestations completely disappeared under the influence of the injections of serum, two to six centimetres daily for fifteen injections. These two authors are careful to avoid prejudging the question of the cure of syphilis, as well as that of immunization against a new infection. Again, recently, at the Congress of Rome, Tommasoli reported that some of his patients who seemed to have been cured, had experienced relapses.

If in these cases the action of the injections of serum seem to have been favorable, it was not always so. M. Kollmann, who claims the priority of this process of hemotherapy in syphilis, employed the serum of the sheep, calf, dog and rabbit, and the results were negative. The injections did not protect the patient from secondary attacks, but they had a favorable influence upon the disease. At the Congress of Nuremberg in 1893, Kollmann returned to this question. At that time he had experimented with eighteen cases, and despite the increased doses of the serum, he declared that he had never obtained a favorable result. Indeed, in some of the cases, new syphilitic complications had supervened during the injections, or a short time thereafter. Dr. Mazza, of Cagliari, instituted some comparative experiments after the method of Tommasoli, the results of which were always negative.

From the few experiences of the different authors whom we have cited, it may be said that the results obtained from the injection of animal serum in syphilis are at least problematical. The serum of an animal that has not been duly prepared—we shall see later on the importance of this term—does not seem to have either a curative or protective influence. Not only does the disease continue to progress, but the specific lesions are not modified. But this it not to say that serotherapy should be rejected, for in syphilis, as in other infections in which serum has been employed, it has shown its tonic action and its power to rehabilitate and renew the weakened organism, so much so that it seems that it is to the favorable modification which it impresses upon the whole organism that may be attributed the few successes which have been observed in the new experiences of serotherapy in syphilis. In other words, this method is a form of medication not specific, but simply adjuvant.

In the preceding researches, the experiments have been inspired, as one may readily see, by those of MM. Richet and Hericourt upon the serotherapy of tuberculosis. The argument is this: If animals are refractory to syphilis, it is because their blood contains substances which destroy the syphilis virus and confer immunity. This reasoning, to speak truly, is a little specious. It supposes that it is the blood alone which exercises an immunizing power, and takes no account of the biological qualities of the cells of the organism. But let us have done with theory, and confine ourselves to the practical. It may be concluded that animal serum does not affect syphilis any more than tuberculosis, and that it has neither specific nor immunizing power. Let us pursue the concatenation of ideas. The blood of the animal that has not been prepared seems to be insufficient; but would it be so, if by injecting the microbes of syphilis, the quality of the blood is changed? We recognize the principle of anti-diphtheria injections, but here we dare to deal with the unknown. We ignore that which may be the micro-organism of syphilis. It is not merely the question of injecting an animal with microbic cultures, but it is to try what may result from the injection of a certain quantity of blood taken from a syphilitic human being. What modifications can the syphilitic blood produce upon the blood of an animal that can make it an agent for inoculation? A problem as yet; but we shall see experiments made in this direction. Syphilitic blood is injected into an animal, and we will suppose, whether right or wrong, that its serum has acquired new immunizing properties, and will serve to inoculate syphilitic patients to cure them, or healthy individuals to protect them. As above said, the serum is prepared, but it may at once be seen that such a method is empirical, and that it pre-supposes a solution of numerous questions. In place of making the syphilitic virus pass through the animal organism, by which it may be destroyed most probably, why not inject

directly the serum of syphilitic individuals. This serum contains anti-toxine, and when injected into a newly infected individual would produce immunization. These are the theories that, as we shall see, are applied in the following experiments.

The inquiry is progressing, and inspiring more recent researches. Immunization is demanded, not from the blood of a refractory animal, for the reason that it escapes, but from blood that contains the products of microbic secretions. C. Pellizzari injected syphilitics with the serum of other syphilitics. The blood came from tertiary syphilitics, or from secondary that had already been treated. The serum was injected under the skin, of strength one half to one c.c. The method was satisfactory, but in 1892 the conclusions were not positive. Two years thereafter the inquiry was renewed, and the patients were in a satisfactory condition. By reason of the small number of patients, the author does not declare any positive conclusions, but he remarks that in many of them, because of their general condition and the indications presented by the disease, the prognosis would have been much more grave than it is. M. Pellizzari insists upon this fact, viz., that the results are much better than those produced by serotherapic treatment, and it supports his theory by which the serum exercises an immunizing action upon the tissues not yet invaded by the virulent agent. Bonaduce has made experiments of the same kind. Discarding theoretical views, he employed the serum of children hereditarily syphilitic, thinking that it contained a large proportion of substances for inoculation. He procured from three children thirty-five c.c. of serum, and after having added 100 grammes of water and raised the mixture to 100 degrees of temperature during ten minutes, he gave twelve injections to a patient recently attacked with syphilis. The chancre healed, the swelling diminished in volume, and seven months after the patient showed no syphilitic manifestations. This experiment is unique; it is impossible to discuss its *modus operandi*, but we are forced to recognize that it is no less practical.

In the following experiments MM. Richet and Hericourt provided themselves with the serum of an animal—dog and ass—with which, in default of the unknown microbe of syphilis, they mingled blood taken from syphilitic patients at the secondary period. A few days after inoculation the blood was injected into some syphilitics. The authors report two observations; one, an old case of syphilis, in whom locomotor ataxia was beginning, and in whom six c.c. injected three times, produced a marked amelioration. The other case was that of a young woman affected with syphilitic ulcerations. During a week she had injections of serum of one to three c.c.; total, twenty-two c.c. Under their influence the syphilitic conditions improved, ulceration cicatrized; general amelioration; specific treatment had been tried previously but failed. MM. Richet and Hericourt were preceded by an Italian experimenter, Dr. Mazzade Cagliari. He injected sheep with the blood of syphilitics taken at the latest period. The inoculations of this animal serum were afterwards practiced upon syphilitics subjects, and although he reported but four observations, the results were encouraging.

It may be said that in this second series of experiments made with the serum prepared, as it were, in opposition to the serum of animals that were simply refractory to syphilis, the results would be very encouraging. It would be the same with those based upon direct injections from man to man of blood infected by syphilis, and these experiments would be more satisfactory to the mind than all others. If the blood contains an anti-toxine, it is very certain that it is in the blood of a syphilitic directly injected and that the chances would exist in the greatest degree of securing the maximum of effects. If we knew the microbe of syphilis, it is also certain that the injection of microbic cultures into animals would simplify the question, and that we could hope for syphilis the same marvelous results that have been obtained in diphtheria and a number of infectious diseases. In showing the difficulties which environ the practice of serotherapy in syphilis, credit should be given to the first results, which, though few in number, are on the whole, very encouraging. As it rests upon a just idea, of which proofs have been given, let us wish for it success, and who knows that one day, not far distant, we can vaccinate against the "big pox," as we have for a century against the smallpox. In a few months it will be just a century since Jenner inoculated vaccine. *This* would indeed be a glorious anniversary!

SOCIETY REPORTS.

PHILADELPHIA ACADEMY OF SURGERY.

April 1, 1895.

Dr. Thomas G. Morton presented two recent adult cases, illustrating

EXCISION OF THE ASTRAGALUS FOR INVETERATE EQUINO-VARUS.

I have on several occasions presented to the society the results following excision of the astragalus for the rectification of equino-varus, congenital or acquired, but I do not remember that we have had before us, as yet, the results after such operations upon adults.

The first case I show you was brought to the Orthopedic Hospital by Dr. Wentz of Scranton, on February 28, 1895. He is twenty-one years of age; the left lower extremity was found to be fairly well developed, but the ankle was weak, and the foot was "flat;" the right limb presented very great atrophy in its entire extent, and the foot was exceedingly rigid and in the position of equino-varus; the patient walked on the dorsum; the astragalus was dislocated forward, as is usual in such cases. The great wasting of one limb and the partial feebleness in the other seemed to indicate the malady was not congenital, but as a result of an early attack of infantile paralysis.

The operation was performed March 3d, and consisted in dividing the tendo Achillis, tibialis anticus, the flexor tendons of all the toes, and the plantar fascia; the excision of the astragalus and a portion of the scaphoid, which hindered a perfect right-angle position of the foot; the foot was then carefully dressed and placed upon a right-angle tin splint; the wound closed by primary union, and at the end of three weeks a well-fitting shoe and brace was substituted—good ankle motion has been secured.

CASE II is also a male, aged twenty-two years, who was sent from Osceola, Pa., to the Orthopedic Hospital and admitted March 13th and operated upon the following day. The deformity was inveterate equino-varus, and probably congenital. The case was almost identical with the one just presented, and the same operation was performed. It is now only sixteen days since, and the wound, it will be observed has united, and the ankle shows good but not voluntary motion. The position of the foot is normal.

I thought it might be of interest to the Fellows of the Academy to see these recent cases, one being a month, and the other only sixteen days after the operation.

DISCUSSION.

DR. J. EWING MEARS: Do the articulations give any trouble after the operation?

DR. MORTON: I have not seen bad consequences after any of my operations, and I have done the operation in a large number of cases.

DR. MEARS: It is interesting to know that synovitis does not occur, as the operation involves a number of the articulations of the tarsus.

DR. MORTON: I did not have synovitis in a single case, and generally there is no rise in temperature or any evidence of reaction.

DR. HENRY WHARTON: Is not the plantar fascia a very great bar to the correction of the deformity, and is it not necessary to divide it in many cases?

DR. MORTON: Yes; in every case in my experience.

DR. WHARTON: It has been my experience also that the plantar fascia is a bar to the correction of the deformity and has to be divided. I have had a number of cases of equino-varus in children and found excision of the astragalus the only thing to be done in these inveterate cases. The results obtained are so much better and are more permanent than by the old method of simply dividing tendons. It has been particularly useful in the case of children of ten or twelve years of age, where the operation of division of tendons has been done or repeatedly done in infancy, without removing the deformity. In such cases there is nothing to be done but to divide the tendons and fascia and excise the astragalus.

DR. JOHN H. BRINTON presented a specimen consisting of a

LARGE OXALIC ACID CALCULUS TAKEN FROM THE HUMAN BLADDER.

I exhibit here a rather large vesical oxalate-of-lime calculus which I removed several months ago at my clinic at the Jefferson College Hospital. The patient was a German, forty-six years of age, a blacksmith from the interior of the State. He had had symptoms of stone for twenty-five years. I made a longitudinal incision into the bladder by the supra-pubic operation and attempted to remove the stone, but found that it was impossible to do so until I had enlarged the bladder opening by a crucial incision. I did this in order to avoid injuring the peritoneum. I then removed this spherical oxalate stone, fully two-and-a-half inches in diameter, and which weighed six ounces when taken out. It is the largest oxalate calculus that I know of in this city. It is so hard that when I took it to a lapidary he tried to cut it with a circular saw; but abandoned it, as he said it would injure his wheel. The surface of this stone is studded with small prominences containing minute brilliant crystals which look like diamonds. The surface is quite rough. It is noteworthy in that the patient carried the stone for twenty-five years and that it gave him comparatively little trouble. In fact, he did not complain of great pain, but said that he knew he had a stone because he could feel it, through the abdomen, with his fingers. The man went home at the expiration of four weeks, having recovered without any bad symptoms.

DISCUSSION.

DR. T. G. MORTON: The remarks of Dr. Brinton remind me of a case which occurred some years ago. I was making a post-mortem examination of an elderly Quaker gentleman who had been for many years a patient of Dr. Wistar. We examined the various organs, and finally we opened the urinary bladder, in which we discovered a large calculus, which must have been growing for many years, and yet it had not given rise to any pain or annoyance, for, if it had, he would have spoken of it to Dr. Wistar. who had been his physician during this time. He apparently had no symptoms of bladder trouble, or none of any consequence.

DR. BRINTON: It is hard to understand why a large stone like this would cause so little pain. There must have been a time when the stone was juvenile and much smaller, and should have caused pain, but the patient said that it had not given him any great trouble, and that he had continued work at his trade until coming to this city for operation.

DR. WHARTON: Large stones do not give as much trouble as small ones. I remember a case of a child whom I operated upon some years ago, who had stone in the bladder and suffered very much from pain and tenesmus, with hemorrhage from the nose, and he also had sub-conjunctival hemorrhages during micturition. In this case the stone that caused so much disturbance only weighed thirteen-and-a-half grains.

DR. J. M. BARTON: Most of the pain in cases of stone in the bladder is owing to the attempt of the patient to empty the bladder, the stone obstructs the urethral opening, acts as a ballvalve and stops the current of urine. The patient continues the pressure, but the ball-valve will not allow the water to escape from the bladder, and the increased pressure leads to enlargement of the muscular bundles and to hypertrophy of the middle coat of the bladder. When the stone gets larger it is less apt to act as a ball-valve, and may give less trouble. The extreme roughness of this stone would prevent its acting as a ball-valve and would account for the absence of pain.

DR. MEARS: I agree in the opinions expressed that small stones give the most trouble and also in the explanation just given by Dr. Barton of the cause of the pain. Some years ago I was called to see a patient who had great trouble in micturition and suffered great pain from stone in the bladder. I removed the stone and found it the size of an almond kernel, although it had caused a good deal of pain and hemorrhage. The stone presented to-night is certainly very interesting. It is of interest to inquire how this stone has grown. Was the stone encysted?

DR. BRINTON: No, it was not. The bladder was thickened and contracted around it, so that there was not much cavity beside that occupied by the stone. The patient had constant dribbling of urine, because the bladder could not hold any water. The mucous membrane, from

pressure on the irregular surface of the stone, presented a very bad and reticulated appearance from chronic inflammation.

DR. MEARS: The man performed very active work at his trade as a blacksmith, which would probably change the position of the stone and keep it from becoming encysted.

DR. THOMAS S. K. MORTON: Why did he have incontinence of urine?

DR. BRINTON: I suppose because there was so little cavity in the bladder to hold water. The stone occupied too much space.

DR. T. G. MORTON: It was strange that a stone of this weight did not cause ulceration and ulcerate its way out of the bladder into the rectum or perineum.

DR. BRINTON. There was suppuration, and the bladder looked and felt so ragged when I took out the stone that I made an unfavorable prognosis. But he did very well after the operation, and I kept him in bed a week longer than usual to prevent any ill results. He had a muscular abdomen, not very fat, probably owing to his blacksmith work. In reply to the President, I would state that no marked bowel symptoms were complained of in this case.

DR. JOHN H. BRINTON, spoke

ON THE USE OF ESMARCH'S HÆMOSTATIC BANDAGE.

The few remarks I have to make on the subject do not rise to the dignity of a paper; I simply wish to bring to the consideration of the Academy some objections to, or dangers from, the use of Esmarch's bandage as a constricting and controlling band. I have used the elastic bandage for many years, and I have had several cases in which the results were not altogether satisfactory.

For instance, a number of years ago I operated at my clinic upon a woman who suffered from some serious bone disease of her leg. The Esmarch bandage was applied from the foot to the lower thigh, and the constricting band (the India-rubber tubing first in vogue) was placed just above the knee by a skilful hospital colleague, now deceased. There was no bleeding during the operation. The bandage had been applied and the operation was begun with the leg semi-flexed upon the thigh, but during the operation the limb was extended. After the operation was finished I found that the constricting band had deeply divided the muscular tissues, posteriorly, almost to the bone. The large vessels and nerves were not injured. This damage resulted, not from the direct constricting force or pressure, but from the tearing of the tissues, firmly fixed above, by the extension of the leg during the operation. I was much annoyed by the accident, and dreaded the results. The patient, however, made a very good recovery; but the incident made a deep impression upon my mind.

In this connection, I ask if any injurious effects of a similar kind have ever been noticed by the Fellows of the Academy from the movement of the limb after the constricting band had been applied? Of course, we all know that the first roller should not be applied too tightly over an ulcerating surface or a tumor, for fear of driving morbid material from the affected spot into the general circulation. There is another point about which I would like to ask the experience of the Academy. It is in relation to the Esmarch bandage and secondary hemorrhage. A few weeks ago I made use of the Esmarch on a case of amputation at the knee-joint. This is an amputation that I had done many times during our late war, and had then often noticed a tendency to consecutive secondary hemorrhage. In the two cases upon whom I did this amputation about a month ago I found a troublesome hemorrhage coming on about six hours afterward. I operated about 2 o'clock, and was called about 8 o'clock on account of bleeding. It was not in either case a free hemorrhage, but rather a persistent oozing from tissues which did not bleed at the time of operation. It came from the superior articular branches, and not from the azygos or inferior articular vessels, as the popliteal artery had been divided on the line of the articulation above their usual origin. I was obliged to open the stump and apply eight or ten ligatures to arrest the hemorrhage. I am unable to tell whether this hemorrhage was produced indirectly by the rubber-constricting band or whether it resulted from some peculiarity of the case. It is possible that the band may have exerted undue pressure on the smaller vessels, producing vasomoter

paresis, impairing their contractile power, and so have favored a post-operative enlargement, and a consequent reactionary or consecutive bleeding.

In our old war times I have participated in many amputations at the knee, and I am certain that I have often noticed this tendency to consecutive hemorrhage. My object in bringing up this subject was to ask if any Fellow of the Academy has at any time observed any evil effects from the constricting band of the Esmarch apparatus, and also whether secondary hemorrhage may not be the result of its use.

DISCUSSION.

DR. H. R. WHARTON: I would ask if Dr. Brinton has noticed any difference as regards hemorrhage when the roller is applied first and the constricting band second and when the constircting band is used alone?

DR. BRINTON. I have always used the first method, and cannot, therefore, answer from my own experience.

DR. WHARTON: I think that there is always more hemorrhage after applying the elastic bandage, followed by the elastic strap, than by simply applying the strap. I think that there is a likelihood that the band is applied too tightly in many instances. The secret is in applying it with just sufficient force to do no damage, and simply to temporarily control the circulation. I have seen no cases injured by the use of the Esmarch tube or strap, but think its use is likely to produce more consecutive hemorrhage.

Owing to the death from consecutive hemorrhage after the use of the Esmarch bandage a number of years ago, we have not, at the Children's Hospital, for many years used the Esmarch bandage or strap in cases of excision of the knee-joint. The most satisfactory use of the Esmarch bandage is for operations upon bone, for necrosis or caries. Another use for the Esmarch is in searching for foreign bodies, such as needles, etc., in the tissues, the search can be made with so much more comfort and with a greater chance of finding the foreign body if we first apply the Esmarch bandage and render the parts perfectly bloodless.

DR. W. BARTON HOPKINS: I can fully corrobrate the statement regarding the risk of applying the circular turns of Esmarch too tightly, as I have for several years been in the habit of demonstrating the immense constricting force which these turns are capable of exerting. By drawing each turn with the utmost tension around a bit of white pine wood a decided crease may be made in it, fully demonstrating its power and giving an object lesson which is not easily forgotten.

DR. JOSEPH HEARN: The Esmarch is generally applied too tightly. It is not necessary to use so much force. I can make a part bloodless simply by the application of my hand. My experience has been limited with secondary hemorrhage, as I have had no secondary hemorrhage. I apply the Esmarch very lightly, and always apply it myself. I only apply ligatures to the larger vessels, and have never had occasion to open a stump for secondary hemorrhage.

DR. BARTON: I have nothing to add to what has been said, except that in cases of resection for ununited fracture I have found the Esmarch bandage unsuited, on account of the large amount of blood thrown out afterward. In operating for ununited fracture of the humerus I would not use the Esmarch bandage, as I have had to remove the permanent plaster dressings for this cause.

DR. MEARS: I was so much impressed with the harmful effects of the tube of the Esmarch apparatus that I substituted for it a flat rubber band, and reported its use in two operations in the *Philadelphia Medical Times*, August 15th, 1874. I have seen a number of evil effects from the application of the tube, such as paralysis from pressure upon the nerves. I always use the band in preference to the tube, as being less injurious.

DR. WILLIAM H. TAYLOR: I have seen the Esmarch bandage applied too tightly, and have myself been very careful in this respect. In excision of the knee I have usually done without the roller bandage, and have used a wide band for the purpose of constriction. In all these cases there is a good deal of oozing, and after excision of the knee this oozing is decidedly increased by the use of the bandage.

DR. THOMAS S. K. MORTON: With regard to the Esmarch roller bandage, I seldom use it any more for operations on the extremities, having had demonstrated to me, when in Glasgow, by Mr. Macewen his method of making the limb bloodless. By elevating the limb for a few minutes we observe after a time that a spasm

of the bloodvessels occurs and the limb becomes bloodless, and then the constricting band can be applied. With regard to the application of the bandage, I do not intrust this to an assistant, but always apply it myself. I always use the narrow strap and not the tube. I take this opportunity of saying that the Esmarch apparatus, as sent out by the instrument makers, is usually defective, because the bandage is too narrow; it should be wider. With regard to the paralysis following the application of the constricting band, it is most liable to occur when it is used just above the knee or elbow, and especially the latter, on account of the course of the musculospiral nerve. This occurs so frequently that we should prohibit the use of the Esmarch bandage around or above the joints.

DR. BRINTON: As a matter of historic record and justice, I wish to say in regard to Dr. Morton's description of the method of making a limb bloodless, as practised by Macewen, that this method probably antedates the present day. I saw it practised many years ago at the Jefferson College by the late Professor Joseph Pancoast.

DR. T. G. MORTON: I also remember seeing Dr. Pancoast applying a broad bandage to a limb in order to reduce the amount of blood in it, and take off the bandage before the operation. This was long before the Esmarch bandage was used.

DR. THOMAS S. K. MORTON: I think that I have been misunderstood. There was no bandage applied by Macewen; he simply elevated the limb and produced a contraction of the arterioles, which made the limb bloodless before applying the strap.

DR. T. G. MORTON: It is very remarkable in Dr. Brinton's case that the tissues were divided. Were the muscles cut or only the skin?

DR. BRINTON: The skin was torn slightly at one point and the muscles were distinctly cut through. I have not seen this accident mentioned in treatises on surgery, but in the *American Text-Book of Surgery* it is stated that there should not be any motion of the limb after the band has been put on.

DR. T. G. MORTON: I have done very many operations upon the knee, but no amputation at the knee-joint since the war. I have not, in many years, had any secondary hemorrhage.

DR. WHARTON: I have recently seen very little secondary hemorrhage. I had a case of reamputation of the leg last summer, where I had to apply the Esmarch bandage where consecutive hemorrhage occurred, and I had to open the stump and tie the vessels. I have not noticed any special liability to hemorrhage after operations at the knee-joints.

DR. T. G. MORTON: In amputating at the knee, did Dr. Brinton remove the condyles or leave them?

DR. BRINTON: I referred rather loosely to these amputations as "at the knee." In each case I sawed off a portion of the condyles, if necessary, to bring the flaps together, but there was not any hemorrhage from the bone.

DR. T. G. MORTON: What was the nature of the injury or disease?

DR. BRINTON: Both were cases of sarcoma.

DR. T. S. K. MORTON: Might not that have been the cause of the hemorrhage? I have noticed that in cases of operation for sarcoma there was much more tendency to bleeding than in ordinary amputations for injury. The vessels are often enlarged.

DR. BRINTON: The vessels did not appear enlarged.

DR. HOPKINS: I have not seen any hemorrhage, except after sloughing.

DR. HEARN: I have not had any experience of this kind, and never have opened a stump for hemorrhage.

DR. BRINTON: I might say, to correct a possible misapprehension, that, although I have of late years done many amputations, these are the only two in which secondary hemorrhage occurred.

EDITOR MEDICAL AND SURGICAL REPORTER.

Dear Sir:—There is evident error in the formula "Sedative Cough Mixture in Phthesis," page 731, Vol lxxii, May 25th, 1895.

Liquor Strychudæ.....℥i should read
" " .....f℥i
Tufus, rosa acid ad.....℥ vi should read
" " .....f℥ vi

I need explain no further than to say that I ordered it "ad f ℥ vi." But you will see the Liquor Strychudæ should be f ℥ i instead of f ℥ i.

Respectfully,
J. M. SHAFFER, M. D.

Koekuk, Ia.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

SURGERY.

Surgical Treatment of Vaginismus.

Froelich (*Revue Medico-Chirurgicale des Maladies des Femmes,*) practiced dilatation twice in the case of rebellious vaginismus, but without favorable results. He then performed the following operation. Two incisions, each two inches in length, were made upon the posterior wall of the vagina to the right and left of the middle line, a large Sims's speculum was then introduced, and as a result of the extreme dilatation produced by the instrument the antero-posterior linear wounds were transformed into two lozenge-shaped wounds with their transverse diameter the longer. The lower edges of these wounds were then freed by dissection and were sutured to the upper edge, thus making a line of suture running at right angles to the original cut and very considerably enlarging the vaginal introitus. The patient was permanently cured, and was found to be well two or three years later.

Asafetida in Obstetrical and Gynecological Practice.

Warman (*Therap. Monats.*) lays stress on the insufficiency of the remedies hitherto recommended in cases of abortion, pointing out that small doses of opium frequently disappoint, whereas large and repeated doses may prove injurious, both being of little value with patients subject to the habit of aborting. The author was therefore readily disposed to employ asafetida, as first recommended by Italian obstetricians. It was usually administered in pills containing one and a half grain, though an enema containing the tincture was soon preferred in cases of threatening abortion. The author found the drug most efficacious in reducing the hemorrhage which is prone to appear subsequently. Even with a very severe and alarming onset the first dose appeared to exert a most tranquilizing effect, and led to a gradual separation of the ovum unattended by contractions. Several instances are described at length to illustrate this, but the material at the author's command is insufficient to warrant him in ascribing to asafetida prophylactic properties. It is otherwise where habitual abortion has existed, and a successful issue in a most obstinate case is described, five in all having been observed by the author. To these patients the pills are administered, commencing with two per diemand increasing to ten, the number subsequently being again reduced. No unpleasant symptoms were produced, but, on the other hand, the action of the bowels was very much assisted, to which the author ascribes much of the success in those cases of what he terms "abortia habiturlis."—*British Medical Journal.*

GYNECOLOGY.

Conservative and Operative Treatment of Pelvic Inflammation.

Doleris (*Nouv. Arch. d'Obstet. et de Gynec.,*) defends the conservative treatment of chronic pelvic inflammatory diseases. He insists that removal of appendages and hysterectomy are only justifiable in very chronic cases. No active steps should be taken when painful or subacute parametritis is present. Operations should be undertaken soon after the catamenial period. Neurotic patients must be handled with caution. They show symptoms which mislead the observer, such as great pain with trifling lesions or little pain when there is extensive disease. As to the alleged intolerance of a patient's system to prolonged therapeutical treatment, the surgeon, however conscientious, is apt to fear complications which are improbable in any one case, especially if the patient be kept out of harm's way by her medical adviser. The patient herself is usually quite content to wait. Doleris believes that dilatation of the cervix, drainage, and the use of the curette are sufficient to cure a majority of cases of chronic disease of the appendages which most authorities would doom to removal of the diseased organs. The precautions above given apply to this conservative, as they do to operative, treatment. Indeed, in one case cited by operators as an instance of the danger of the conservative method, the curette was used when posterior parametritis existed. Bad symptoms followed and the appendages were removed, and not till after the abdominal section did the patient die.

THERAPEUTICS.

Treatment of Cyanide Poisoning.

Antal (*Physiol. Studien aus d. Univ. Budapest*) observes that although the cyanides are the strongest of poisons, yet the rapid form of death only occurs in a small proportion of cases of poisoning by them. Atropine recommended by Preyer against the remote effects has given negative results. Potassic permanganate used by Kossa is perhaps the most efficient of chemical antidotes, yet it also is useless when the poison has got into the circulation. The author has investigated the action of cobaltum nitricum oxydulatum in this respect. When cyanides are present in the stomach of an animal, and a solution of this cobalt salt is introduced, a harmless potassic cobalticyanide (K_3CoCy_6) is formed. That the cobalt salt can render absorbed cyanides harmless is due to the rapidity of its absorption and to the small quantity needed to make large quantities of cyanide inert. As regards the physiological action of cobalt salts little is known at present;

the excretion takes place through the kidneys, and the author believes them to have a powerful diuretic effect. The toxicity of the cobalt salts depends entirely on their concentration, as the author demonstrates by his experiments. In ½ to 1 per cent. solutions they have no definite action on the functions of the heart, and the red blood cells are not altered. The author records a series of experiments to show the antidotal properties of the above named cobalt salt. When rabbits or dogs are given a lethal dose of cyanide, and a ½ to 1 per cent. of the cobalt salt is introdnced into the stomach, no poisonous effects are produced. Experiments are so related which show that this solution, subcutaneously injected, will also neutralize the effects of absorbed cyanide. The author concludes that in man, to render inert already absorbed cyanide, ½ per cent. solution of the above named salt (10 to 30 c.cm.) should be injected subcutaneously; at the same time the same solution should be given by the mouth or, if that is impossible, passed into the stomach by means of a tube to neutralize any cyanides still present there.—*Brit. Med. Jour.*

Tetanus Antitoxin in "Kopftetanus."

G. Caretti (*Rif. Med.*,) reports the following case: On September 8th, 1894, he was called to a peasant woman, aged 44, who had fallen from a cart on her head. He found a lacerated contused wound on the forehead, extending down to the bone to which an improvised dressing of dirty rags had been applied. There was slight swelling for about a centimetre around the edges of the wound. He carefully disinfected the part with sublimate solution (1 in 1,000), put in three carbolized silk sutures, and appled an antiseptic dressing. On the following days the inflammation of the neighbouring parts increased, and œdema developed on the eyelids and cheeks. This was relieved by squeezing out a little pus at one of the points of suture, and by the seventh day, when perfect union of the wound made it possible to remove the sutures, it had almost entirely disappeared. On the previous day (sixth since the injury) the patient had noticed a certain difficulty in opening her mouth, and transient pains with slight contractions of the masseter muscles. Recognizing that the symptoms pointed to the onset of tetanus, the author prescribed a draught of 4 grammes of chloral and bromide of potassium, half to be taken at once, and half the following morning. On September 16th the trismus had reached such a degree that only a coin about the size of a threepenny-piece could be passed flatwise between the teeth. A supply of anti toxin was at once procurred from Dottoressa Cattani, and a dose of 2.25 grammes dissolved in 25 grammes of sterilised water was injected under the skin of the abdomen on September 16. On the following morning the trismus was somewhat less, but slight contraction of muscles at the back of the neck were noticed. Anti-toxin was injected as before. On September 18th the general condition was satisfcctoro, but the lockjaw was complete; an injection of 1.10 gramme of anti-toxin was given. The symptoms being somewhat worse on the evening of the 18th, another injection of the same amount was given. The patient was able to take liquid nourishment by sucking it through an aperture between the teeth formed by the powerful retraction of the lower jaw. The movements of the tongue and of deglutition were performed without difficulty. Another injection of 1.10 gramme was given. The patient suffered from sleeplessness and complained of severe pains in the head and along the massater; there was facial paralysis on both sides. The temperature was not raised, and consciousness was undisturbed, and apart from the lockjaw and facial paralysis the patient was fairly well in herself. She remained in much the same condition until the beginning of October, when she began slowly to improve, but it was not till the middle of that month that she was able to open her mouth sufficiently. On November 3d the author was able to announce to Professor Tizzoni that the patient was completely cured. He points out that the progress of the diseased was checked immediately after the administration of the antitoxin was begun; although on September 17th there was some appearance of the posterior muscles of the neck being invaded, this soon passed off. The author attributes the fact that no spasm of the pharyngeal muscles occurred to the remedial influence of the antitoxin. He refers to another case of "kopftetanus" reported by Giusti and Bonajuti in the *Gazzetta degli Ospitali*, No. 56, 1894, which was cured by Tizzoni's antitoxin.

NEWS AND MISCELLANY.

Low Rates to Denver.

The B. & O. R. R. Co. will place on sale at all ticket offices on its lines east of the Ohio River round-trip tickets to Denver, Colorado Springs, Manitou and Pueblo, for all trains of July 2, 3, 4, 5, and valid from starting point on day of sale and good returning from Colorado points July 12 to 15 inclusive. The rate from Philadelphia will be $44.75, and correspondingly low rates when from other stations. Tickets will be good via St. Louis or Chicago.—3t.

Reduced Rates to Baltimore.

The B. & O. R. R. Co. will sell excursion tickets to Baltimore from all points on its lines east of Ohio River at one fare for the round trip. Tickets will be sold July 16th and 17th, valid for return passage until August 5th. For time of trains and full details, call or write nearest B. & O. Agent.

The rate from Philadelphia will be $2.80 and correspondingly low rates from other points.—3t.

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ORIGINAL ARTICLES.

TREATMENT OF ACUTE PNEUMONIA IN THE ADULT.

F. R. MILLARD, M.D., San Diego, Cal.

When the lung is inflamed there is, whether from an increased amount of fibrin in the blood or an increased tendency to its coagulation, coagulable matter forced into the intercapillary spaces consequent on the difficulty with which the blood circulates through the inflamed organ. Every one must have seen that a gallon of water can be got out of a jug quicker and easier than a gallon of molasses. All physicians who have used the lancet in pneumonia have seen that after fifteen or thirty ounces of blood have been drawn it flows more quickly and easily. But others have so recently given the readers of The Reporter the arguments in favor of venesection in pneumonia that it is not now necessary to repeat them. It is *always* beneficial in the earliest stage, but the country doctor does not always see the patient until that stage is passed. Later in the course of the disease, the patient sometimes gets into a condition where bleeding is essentially the sheet anchor of treatment. It is when the right heart is unable to completely empty itself. This stage is very seldom reached if treatment has been prompt and proper. To return to our jug. If one takes one-half gallon of molasses out of it, and put in one-half gallon of water, one can empty it in one-half the time necessary before the dilution. Knowing that fact, it seems to me more reasonable in the treatment of acute pneumonia always to reduce this viscosity of the blood rather than to add to the poison generated by the fever another species of poison supposed to take off some of the pressure on the other side of the circulation.

But venesection is not the only means we have of reducing the hyperfibrinosis of the blood. All physicians know that thirty grains of bicarbonate of potash in three ounces of water, given every four hours will soon reduce the hyperfibrinosis in acute rheumatism. How many have tried it in pneumonia? It is a remedy not devoid of danger, though there is less danger in using it than any of the nerve poisons so highly lauded by some of our enterprising chemists in Europe. A doctor was induced to try it and after four months wrote that all his cases, eighteen in number, their ages ranging from four months to eighty-four years, had recovered. One year later, he wrote that of uncomplicated cases he had lost none.

Nearly every author who recommends blisters in pneumonia, advises against applying them in the early stage for fear they *may* cause an increase in the fever and extension of the inflamed area. I do not recall a single reputable author who says he *knows from his own observation*

that it will do so. Noticing that so many writers used words that were almost identical in this advice, aroused in me a suspicion that it was a belief handed down from father to son, as illustrations that do not illustrate are handed down from one surgical author to another. Nature has been called a relentless step-mother, but I had not practised many years before I had come to regard her as relentlessly kind, for she had often cured my patients in spite of so-called scientific treatment which common-sense told me was bad treatment. This continued unvarying kindness emboldened me to subject some of the accepted theories of practice to the test of experiment. "One swallow does not make a summer," neither does a single success or failure settle the value or worthlessness of any line of treatment.

Recently, during a discussion by a state medical society of the treatment of pneumonia, the question was asked, "Why, considering the small amount of depletion a blister achieves, the benefit was so great?" No answer was published. Some of us were taught in the olden time that next to the lancet, a cantharides blister of generous dimensions was the quickest and surest means to reduce the amount of fibrin in the blood. Has the importation of the *pneumococcus* changed the blood or tissues? It requires some hours for a blister to get in all its work, and it is not possible during those hours to so act on the circulation as to get the benefit of the blister before the inflammation has done all the damage to the lung it is capable of doing. Wishing to test the relative value of early and late blisters and in a measure eliminate the personal factor, I induced a friend in another state to take up the investigation with me. We agreed to divide our cases fairly between early and late blistering for one year; after that divide them as we saw fit, and at the end of ten years we would compare our ideas. At the end of the term, my friend wrote that for some years he had not seen a previously healthy person ill with pneumonia too early to apply a blister. The fact that my friend gained and held the largest practice in his town, in competition with three or four other regular physicians, is ground for at least strong suspicion that he was fairly successful in his treatment. Our treatment was to apply a blister and give 1-16 grain of tartar emetic in a teaspoonful of water every half hour until decided nausea was induced, when the time between doses was increased as tolerance was acquired, always maintaining nausea until until expectoration was free and the cough caused no pain; after this whatever mild tonic seemed indicated for a few days. In some cases in any locality, and in most cases in malarial localities, three or four grains of calomel, in doses from ½ to one grain should be given during the first six or eight hours, and, sometimes, may need to be repeated. Free catharsis may occur, but tolerance is so easily acquired that omitting a dose or two is all that is required. If it is really necessary to check hypercatharsis, a few small doses of an imitation Dover's powder with nitrate of potash as a diluent will soon quiet matters. The hygroscopic nature of the nitrate is an objection, but it is far preferable to the inert sugar of milk. The objection does not hold against Dr. Dover's powder which may be used if you can get it. By the way, I wonder what the old scientist said when he saw (if he did see it) our late U. S. P., and found that the committee had emasculated his truly scientific recipe and then called the product "Dover's powder." I imagine he uttered a prayer, or something in favor of or about them. The relief, or apparent benefit following the administration of the powder will often be a strong temptation to continue the use of it. But do not give more nor continue it longer than is necessary to moderate the hypercatharsis, or you will certainly prolong the illness; and may do even more harm than that.

Should the patient unfortunately fall into that condition where the right heart is unable to completely empty itself, venesection should be resorted to to the extent necessary to relieve the heart. In some cases ten or twelve ounces will be sufficient. In other cases twice that quantity may be required. After which keep up the heart tone with—alcohol? Never! "But," says the user of alcohol, "it lengthens and strengthens the heart stroke and beautifully equalizes the circulation!" So does "dope" lengthen, strengthen and equalize the stride of the race-horse, but the judicious owner would rather lose the race than give "dope" to a valuable animal. Alcohol does its work by, and only so far as it produces, anesthesia of the nerve centres. The user also says it re-

tards tissue change and thus husbands the strength. Does it? And if so, is such a husbanding desirable? The patient is ill because there is matter out of its right place in the lung, he will never be well until that matter is gotten rid of, and I know of only one way it has ever been gotten rid of and that is by tissue change. If the advocates of alcohol will tell me of a better way I will be only to glad to learn it. Digitalis will do all for the circulation that alcohol can, and is a true tonic to the heart muscle also. I generally give strychnine, which is not only a true heart tonic but a respiratory tonic as well. 1-200 or 1-180 grain every half hour until the gauge of the patient is obtained, and then a sufficient dose every three or four hours. A larger dose may be given three times a day, but to me it seems best to give a smaller dose at shorter intervals.

The over-nice doctor and the lady nurse object to blisters because the poultice is "nasty and troublesome." I have never yet heard a patient who has experienced the benefit a well-treated blister gives object to the "nastiness or the trouble," nor the pain either, when told it was best a blister be applied. On the contrary, I have often been urged to apply one, and have refused when I was morally certain the patient would get well before a blister could be made to heal. It may seem superfluous to tell a doctor how to blister a pneumonic patient, but having had in blisters, no little experience of the "know how it is yourself" kind, and having seen them so often badly treated in consultation cases, at the risk of telling a twice-told tale I shall give my method. Cleanse the surface with hot water and soap, and apply a well-fitted bandage with suspenders or shoulder tapes attached. Then put on the blister and secure it in place with the bandage. In about four hours, or so soon as pin-head-sized vesicles appear, remove the vesicant and apply a poultice of flaxseed meal, ground elm-bark, or of bread and milk. Be sure the poultice is thick, soft and smooth. Over this put a piece of oiled silk larger than the poultice, and secure with the bandage. In four hours remove and open the blebs, cutting out from the most dependent part a piece of cuticle sufficiently large to effectually prevent refilling. So long as the discharge is free the poultice should be renewed as often as once in four hours, and if the other treatment has been judicious, the surface may be allowed to heal of it own accord.

I believe this plan of treating pneumonia the best the country doctor can follow in the large majority of his cases. Few caretakers will be so dull they cannot learn to omit a dose of the medicine every time the patient vomits; and few will be able to correctly read the clinical thermometer and follow the road it indicates, and this is absolutely essential in treating pneumonia by the continued applications of snow or ice, which is the ideal treatment when competent attendants can be had.

There is a class of cases where every possible effort should be made to get such attendants. I allude to those who have had repeated attacks at short intervals. I think patients so treated are less liable to succeeding attacks. There are those still living who were so treated in 1857, and who have had no attacks since, but who had previously had from two to five attacks, each, at intervals of one or two years. As most of them are living on the same farms they have, of course, been subjected to the same climatic influences as before.

Nor is this treatment inconsistent with the advice given to always reduce the hyperfibrinosis of the blood. During the year 1865 and 1866, I made many comparisons of blood drawn before treatment, and that drawn after three or four days of tartar emetic and blister and after the same duration of treatment by continuous cold, and I found that the reduction was practically the same under both methods. The intelligent physician who faithfully follows either plan will not ask, "can pneumonia be absorted." And if he be asked the question he can hold his head like a man, and speak out loud and plain, "Yes Sir, if you please!"—and he knows how to do it. My conviction is very firm, that if a proper reduction was always obtained, there would follow a large diminution in the number of cases of recurring and chronic pneumonia, as well as of fibroid phthisis. This conviction is based on the subsequent history of patients treated on different plans, observations having been continued some years after treatment. My opportunity for following up the several histories has been, at least, fairly good, for the shortest term of my practice in any one community was fifteen

years. As no directions have been given for the "cold" plan, I will say that the mode I followed was practically the same as has been used by Professor Mays. Where there is a difference it is possible his may be better.

I shall not give the percentage of recoveries I have had in treating pneumonia, for a learned author and professor told me, many years ago, that, "it was not to be expected that a country doctor, who evidently kept his own books, would estimate percentage correctly, and therefore my statistics were absolutely worthless." I do not expect to convert that Professor, nor any other authority, for, doubtless they are convinced that, "*we* are the people, and wisdom will die with *us*." But, perhaps, some studious mountaineer, or conscientious, hard-riding, prairie doctor, who has been taught to closely watch the patient and the pneumococcus—or some other "cus"—fight out the pneumonia while he stands by to "meet the indications as they arise," and who, if the patient happens to live, piously may give God the glory while he takes the pay, may be induced to abandon his attitude of expectant attention, and by careful, patient, *personal* observation learn the actions both primary and remote of his remedies. And then remembering that "it is a condition, not a theory" he is called to meet, he will take a hand in the fight himself, basing the treatment on common-sense rather than on the teaching of some facile writer whose own statistics show that his success has been no greater, if as great, than it would have been had he sent his patients to bed in a comfortable, well-ventilated room, given to each of them a canteen of water and a box of ship biscuit, and then gone off for a month's fishing. Should he thus use his knowledge he will find the period of attention shortened, the death rate decreased and, while he can take the pay with a clear conscience, no small share of the glory will come with it.

INFLAMMATORY DISEASES OF THE CERVICAL LYMPHATIC GLANDS.*

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Owing to the close relations that the cervical lymphatic glands bear to the important and vital structures passing through the neck and those belonging properly to this region; the frequency of their being diseased, and the immediate and remote results of such diseases, this subject becomes one of special interest to the physician and surgeon. Bound together in the neck in a small compass we find posteriorly the vertebral column enclosing the spinal cord, blood vessels and nerves, air and food passages, muscles, glands, cellular tissues and fasciæ. The spinal cord is the only one of these that is well protected and therefore not liable to be involved with diseased lymphatic glands or complicated in the treatment.

A brief description of the topography of the neck and the anatomical arrangement of the glands is necessary before considering the subject proper. I will not mention the different regions and spaces other than to say that the neck forms two irregular quadrilateral spaces, one on either side. These spaces are bounded superiorly by the lines of the lower jaw and mastoid processes and the superior occipital lines to the occipital protuberance; inferiorly by lines extending along the clavicles, the acromion processes and to the spinus process of the seventh cervical vertebra; posteriorly from the spinus process of the seventh cervical vertebra to the occipital protuberance; and anteriorly by the middle line of the neck.

These spaces are divided diagonally by the sterno-mastoid muscle into the posterior and anterior triangles.

Subdivisions of these triangles are further made by anatomists, but aside from the supra-hyoid space they are of little practi-

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cal value to the surgeon. The sternomastoid muscle is the leading guide to many of the important organs. There is perhaps no other portion of the body where the anatomical arrangement of the organs are more constant in their positions than in the neck. Therefore, with a thorough knowledge of the landmarks, the surgeon can operate on glandular enlargements with comparative safety from anomalies. This constancy of the structures of the neck is due largely to the arrangement of the fasciæ. The superficial fascia is continuous with that of the head and trunk and includes the platysma-myoid muscles and the external jugular veins, and is very loose. The deep fascia divides, fixes and binds together the various tissues and organs, and has strong attachments to the transverse processes of the cervical vertebræ. There are some points of great value in connection with the arrangement of the superficial and deep fasciæ in making a diagnosis of tumors in the neck and also in arriving at a prognosis. Glands that are loose and movable are usually confined to the external fascia; when in the deeper fascia, they become fixed. Again, owing to the arrangement of the different sheethes and layers, tumors have a tendency to grow downward. This is especially true of fluid tumors. These observations are not confined to the lymphatic tumors alone. This tendency should always be borne in mind by the surgeon in making a diagnosis of obscure swellings in the neck.

As our subject is confined to the lymphatic glands, a consideration of the anatomy of the neck will not be further necessary, except to give a brief description of these glands. The lymphatics of the neck in their distribution do not vary from the general arrangement in other portions of the body in that there are two sets, superficial and deep. In number they exceed that of any other portion of the body and the deep set are of larger size. The superficial set are found along the external jugular veins between the platysma and the deep fascia. They are most numerous at the base of the posterior triangle. A few small glands are found on the front and sides of the larynx and beneath the mastoid processes. The deep set form an uninterrupted chain along the internal jugular veins and carotid arteries. There can be no correct estimate placed upon the number of glands in the different groups of the neck.

With these imperfect outlines of the typography of the neck I will now proceed to to a consideration of the inflammatory diseases of these glands. The inflammatory diseases in their general features are so well understood that I will not devote much space to a description. Since the management of the different forms is in many instances so radically different, I am compelled, however, to give a classification and a short clinical history of each.

The most practical grand division in the classification of these diseases, is the simple and the specific. The simple variety is perhaps met in children oftener than almost any other disease. In severity, simple adenitis exists from the evanescent swelling of the glands that passes off in a few days, to that of suppuration or chronic enlargement that continues for weeks, causes the patient much trouble and is liable to become specific from secondary infection. The clinical features are so common that it is useless to take our time with an extended description of them. The etiological factors are numerous. Inflammatory processes about the mouth, face, head and ears, such as ulceration of a tooth, stomatitis, tonsilitis or any of the diseases of mucous membranes, eczema of the face or scalp, dermatitis, otitis media, pediculosis capitis, and other diseases too numerous to mention, are frequent causes. The eruption of the teeth, exposure to cold and sprains are all common causes in producing swelling of the cervical glands. The pathological changes that take place are found first in the cortex of the gland. It becomes more vascular, soft and swollen; the reticulum loses its distinctiveness; the lymph passages become packed with lymph. The capillaries become enlarged and the gland becomes a deep purple in color. The termination may be by resolution, chronic enlargement or suppuration. Owing to the inherent power of the glands to throw off foreign bodies and to resist the attacks of invading microbes, a large proportion of them undergo resolution and disappear. When the inflammation becomes chronic there is a failure to absorb the exudates and they become organized. This thickens the capsule and it becomes hard and adherent to the surrounding tissues. In some cases the lymphatic vessels are com-

pressed and there follows dilation of them and edema of the parts. If their termination is by suppuration, the gland itself will be the seat of necrosis, or the tissues surrounding it. If the latter, the gland is often found partially intact in the abscess.

There is always danger of a simple adenitis becoming tubercular. A healthy gland has a resisting power to the growth of tubercle bacilli, but when diseased it very readily becomes a nidus for their cultivation. I do not believe the profession is fully alive to the danger of this source of tubercular infection. Enlarged glands are so frequent, and terminate favorably in so many cases that the physician becomes indifferent to the gravity of them.

Under the specific inflammatory enlargements we have tubercular, syphilitic and glanderous and a few others not necessary to mention. It is now a well established fact that the lymphatic glands all over the body are frequently affected by tuberculosis. The cervical glands are especially prone to be affected, probably owing to the numerous sources of infection about the mouth, face and head. It is claimed that 95 per cent. of all the cases of tubercular adenitis occur in the cervical lymphatic glands. The source of infection is much the same as in the simple variety. There is some abrasion or disintegration of the skin or mucous membrane through which the bacilli gain entrance to the lymphatic vessels and are carried to the gland. The bacillus tuberculosis is nonmotile, so this is the only explanation we can give of its entrance and progress. Another clinical fact goes to prove this, in that when a gland belonging to the superficial set becomes infected, others in the same chain become affected. It is so with the deep set. This is most conclusive evidence that the bacilli are carried by the lymph current. In the active stage of the inflammatory process the lymph vessels are sometimes occluded and thus prevent the extension of tubercular infection for the time being. There are some exceptions to this rule of invasion in the direction of the lymph current. These exceptions may be accounted for by the wandering leucocytes, to which the bacilli may become attached. We may note another clinical feature that bears upon the above theory, that as long as the bacilli are confined to the lymphatic glands there is no danger of general infection, but when they pass these filters and the germ gets into the general circulation there follows general tuberculosis, generally pulmonary. For an extended description of the pathological anatomy I will refer the reader to works on that subject. Suffice it to say that cell necrosis is followed by caseation and the bacilli within these nodules die or become inert and remain frequently for months or years without any signs of activity. During this time the gland is not tender and remains quiescent and gives the patient no particular trouble. The cheesy material may dry and become enclosed in the capsule or connective tissue and remain in calcification, or it may undergo liquefaction.

Secondary infection may take place from pus microbes, when an acute inflammatory process will set up involving the surrounding tissues, followed by suppuration. When a group of glands are diseased the first infected may have undergone the degenerative process above mentioned, while the last ones are simply pinkish and only show the primary stage of the disease. I recently removed from a patient, axillary glands which ranged in size from that of walnut to that of a small almond. They were knotted together by connective tissue and the larger ones had undergone the cheesy degeneration. Liquefaction had not taken place in any of them. Several of them had a few foci of necrotic degeneration, and the smaller did not present any changes further than the hyperæmic enlargement.

It occurs to me that a differential diagnosis among the several forms of cervical adenitis is of great importance, and inasmuch as this paper will be of greater length than I intended, I will omit the symptomatology and consider a few of the important clinical features in pointing out the diagnostic points of each kind.

In simple adenitis there is difficulty oftentimes to differentiate the true condition.

Suppurative adenitis is an acute inflammatory process that terminates in a few in pus.

Adenitis developing from a sore about the lips which has the characteristics of a general sore, can be easily differentiated from the simple or tubercular varieties.

In tertiary syphilis the whole glandular system, especially the superficial set, is

affected. The affected glands are painless, indurated and loose in the tissues.

Carcinoma never occurs as a primary affection of the lymphatic glands. When enlargement of glands occurs close to a suspicious tumor, there is not much doubt as to its character.

Lymphoma always affects but one, and the cause is benign.

Lympho-sarcoma gives rise to regional and general infections. In this respect it is like tubercular adenitis, but it is not inflammatory and therefore does not produce degeneration of the tissues.

A prognosis of inflammation of the cervical glands depends largely upon the variety and the management. If left to themselves or treated in an improper manner they become a frequent cause of death. Simple adenitis *per se* is not dangerous, but when we consider the danger of secondary infection from tuberculosis it becomes a grave disease. Local tuberculosis is a constant menace to the life of the patient, and therefore the gravity of tubercular adenitis, in the cervical glands especially, should be recognized. General infection may not occur, but the disease remains there with the wand of death ready to beckon its victim.

The treatment of cervical adenitis, after a careful diagnosis has been made, is important. In the simple variety much can be done to avoid suppuration and secondary infection. One of the cardinal principles in treating adenitis, of whatever kind, is to remove the cause or source of the trouble. When called to see a patient with enlarged cervical glands it is the imperative duty of the physician to carefully examine the mouth, throat, nose, ears and scalp to find the cause of the trouble; and if found, it should be removed. Rest and the application of cold to the swollen glands is about the only treatment necessary following the removal of the cause.

I wish here to protest against the almost universal custom of applying local irritants over swollen glands, such as tincture of iodine, coal oil, etc., etc. I also protest against the indiscriminate use of fomentations. The ancient theory that iodine applied externally causes absorption of exudates or will reduce enlarged glands, seems to be prevalent among physicians of the present day. The external use of tincture of iodine is unsightly, painful, and may be injurious. Local irritants stimulate the pericellular tissues to a vascular hyperæmia and thus may convert a quiescent enlarged gland into an acute inflammatory action and possible suppuration. Another source of danger may arise from abrasion of the skin so that microbes may find their way into the lymph currents and diseased glands. These restrictions to the use of irritants apply both to the simple and specific varieties of adenitis.

When suppuration has occurred fomentations may take the place of the cold applications. As soon as fluctuation can be detected, a free incision should be made into the pus cavity. The patient should be anæsthetized, and then the abscess can be opened carefully and thoroughly cleaned out. By "cleaning out" I mean curretting and washing with antiseptic solution and then packing with iodoform gauze. If this plan can be followed there will be a speedy recovery with the least possible drain upon the system and little resulting scar. Constitutional treatment is necessary to support the system. I depend upon the lime salts, arsenic and iron. If the suppuration is found to be in the peri-glandular tissues and the gland not fully broken down, which is often the case, it should be removed and the cavity treated in the above manner.

The treatment of the tubercular variety is one of the most interesting and important subjects pertaining to the management of the lymphatic glands. The treatment very naturally resolves itself into two forms—constitutional and local or surgical. Under the constitutional treatment there lurks much danger to the patient. The old idea of the effect of the alterative treatment in scrofula is still abroad in the profession. No one knows what it means, but through ignorance of the action of drugs and the pathology of tubercular adenitis, the physician goes on prescribing nauseating medicines, hoping thereby to cure these local swellings, but his patient goes on toward the grave, or may return to health after months or years of running sores and with hideous scars resulting. The true purpose of constitutional treatment is, or should be, to build up the system. This can best be accomplished with cod-liver oil (pure-emulsions should be discarded), arsenic, iron,

nutritious diet and proper hygienic surroundings. The curative treatment is surgical and should be resorted to at the earliest possible time. On general principles there are no good reasons for delay. Early extirpation of tubercular glands affords as great immunity from subsequent infection as it does in carcinoma. In the face of modern statistics, no one would advise delay in removing a malignant tumor before the surrounding tissues and glands become infected. So it is with tubercular lymphatic glands; if left alone, additional glands become infected; there is constant danger of general infection and there will be more or less peri-cellulitis, thus complicating operative interference. And other complications will arise that will make what primarily would have been a simple surgical operation, one of the most formidable known to surgery, thus jeopardizing the life of the patient.

The surgeon must be thoroughly familiar with the topographical arrangement of the tissues and organs of the neck before he ventures to operate; and must be prepared to meet emergencies of the gravest character. Exercising all the skill and care possible, he will meet with difficulties that will require mature judgement to overcome. I have found it necessary to ligate the jugular vein in two cases, and the external artery in one. These cases presented no unusual features, except that the enlarged glands were closely attached to the vessels by adhesions caused from peri-cellulitis and which could not be diagnosed before the incision was made. In the posterior triangle of the neck, if a tumor is large and with a tendency to grow downward, there is considerable danger from direct infection through the apex of the lung. In one case, operated upon about three years ago, the gland had become quite large and pressed upon the lung in such a way as to produce a severe cough. The tumor was found to be attached to the pleura and subclavian artery and the several cords of the brachial plexus. A subsidence of the cough followed the removal of the tumor, what seemed to be an incipient tuberculosis was fully arrested, and the patient now enjoys perfect health.

There are some important points in the technique of these operations, that should be closely observed:—

1st. The incision through the integument should be large enough to expose the glands to be removed. By adhering to this rule, many of the accidents referred to will be obviated.

2nd. Never use a cutting instrument if it is possible to avoid it. One of the best instruments for the purpose is the plain curved scissors; the concavity fits nicely over the surface of the tumor and reduces the danger of injury to either the cyst or blood vessels to a minimum. The finger is also an efficient and intelligent dissector, to be used in preference to any other instrument if space will admit of it.

3rd. If suppuration has taken place, the sac should be thoroughly curetted, removing if possible all the diseased tissues, the exposed surfaces should be wiped off with pure carbolic acid and then packed with iodoform gauze. There should be no effort to close the incision by sutures. Tubercle bacilli do not flourish in a dry place; therefore, the wound should be kept as free from secretions as possible. The dressings should be changed every second or third day.

4th. If suppuration has not taken place and the glands can be removed without bursting the sac the incision may be closed without drainage.

5th. It is highly necessary to remove all the glands that can be found in the region infected. The operator will often be surprised at the number affected when he comes to make an examination directly through the wound. One small gland left, if infected, will defeat the object of the operation.

CONCLUSIONS:

1. Inflammatory diseases of the cervical lymphatic glands are frequent, and a common source of grave complications.

2. Simple adenitis should receive careful and prompt attention from the physician.

3. Constitutional treatment has no direct influence on these enlarged glands.

4. Irritating local applications are unsightly, painful and a frequent source of secondary infection from pathogenic microbes.

5. The tubercular form frequently leads to general tuberculosis and death, or to chronic suppurating sinuses that continue years and eventually leave disfiguring scars.

6. The early removal of chronically enlarged glands or tubercular glands is followed by greater immunity from return than is the early removal of carcinoma.

7. The operation should be thorough, removing all the glands in the plexus that may be found affected.

COMPLICATIONS AND SEQUELÆ OF EPIDEMIC INFLUENZA (LA-GRIPPE), AND THEIR PROPHYLAXIS.*

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By the title assigned to this paper, we are confined in our treatment of the subject to the complications, sequelæ and prevention of la-grippe. It is, therefore, not germane to our purpose and would require more than the allotted time, to refer to the history, symptoms and treatment of the disease itself. However, to properly apply what we desire to say, it is necessary to refer briefly to the general nature of influenza, and particularly to its pathology as expounded by the best writers and teachers.

A recent writer defines influenza in the following terms: "A specific, epidemic, self-limited, febrile disease, probably" dependent upon a bacillus or microbe. In common with almost all other epidemic diseases, influenza has been in later years subject to the investigations of the noble band of pathologists and bacteriologists who have accomplished so much for scientific medicine. Pfeiffer, as early as 1889 or '90, after very careful investigation, describes specific bacilli found in pure cultures of the bronchial secretions in uncomplicated influenza, which were absent from the sputa of ordinary bronchial catarrh, pneumonia and pulmonary tuberculosis.

I do not purpose to follow the development of this theory as I believe all are more or less familiar with the claims set forth in its behalf. It can not be admitted that the facts claimed are positively proven, nevertheless, in view of the brilliant discoveries of the past decade, we are justified in accepting their conclusions as authoritative. According to this theory, the bacilli or microbes enter the system principally by the mucous membrane of the respiratory organs, and by multiplication and secondary causes accomplish all the phenomena belonging to the disease we are considering.

It is thought by some that numerous bacilli or microbes differing in their nature unite in producing the complicated symptoms and sequelæ which are met with so frequently. Others believe the different complications may be explained by the differences in situation, environment and constitution of those affected. Each patient gives the morbid element a different setting and surrounding. We have all noticed the effect produced by change of combination. The chemist by slightly varying the elements of a mild and innocent substance converts it into virulent poison. The artist adds a few touches of the brush to the canvas and how different the picture. So in disease; one patient is young, another quite aged; one of strong constitution, another always delicate; some live carefully, others recklessly. Each patient presents different physical conditions and when attacked by disease no two individuals manifest exactly the same symptoms.

Apart from all theory, experience proves that there is a marked difference between the same affection occurring as a separate disease and as a complication with la grippe.

Of complications, undoubtedly pneumonia and bronchitis are more often present, but there is a dispute amongst observers as to which of these two occurs the more frequently. A recent French writer believes that the complex pathology of these chest complications is explained by the presence of different microbes in the different forms. There are thus congestive, inflammatory and suppurative pneumonias; those produced by pneumococci and those caused by streptococci.

It is an admitted fact that the virulence of micro-organisms is raised to the highest degree in all forms of influenza and its complications.

I need not dwell long on the management of these particular chest complications. The important duty is to remember the depressing nature of the original affection. Especially remember the importance of sustaining and energizing the cardiac and respiratory nerves. In my

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limited experience I have found nothing that can compare with strychnia and digitalis—full doses of digitalis and much larger than the ordinary dose of strychnia. We are too timid in our dosage of strychnia. In those cases where the influenza is still active I add to the above, fluid extract of aconite in small doses. This may appear heterodox, but I believe it to be a sensible combination. Of course phenacetine and its companions of the coal-tar group, with codeine, may be continued in some cases from the original influenza to the complicating pneumonia and bronchitis. An early recourse should be had to cod-liver oil and syrup of hypophosphites or similar tonic remedies.

Pleuritis is a complication of la grippe which is not very frequent, nor is there any particular management required except to remember the nature of the previous trouble.

A more frequent complication as well as more troublesome, is pleurodynia. In our part of the State it has been of very frequent occurrence the past season. The pain is often severe, resembling pleuritis or pleuro-pneumonia. Pressure along the course of the intercostal nerve will promptly locate the trouble. It is usually located on the left side. Great alarm frequently results from the feeling that the heart is or will be involved. It is not necessary to speak of special forms of treatment for this complication. It is one of the neurotic forms of the disease and yields to the general management which we recommend further on for these conditions. One important duty of the medical attendant is to relieve the mental anxiety by assurance that the heart is in no danger.

At certain times in some epidemics rheumatism is a complication. Da Costa speaks of an experience of this kind occurring to him during the epidemic of '91 and '92.

Disorders of digestion are frequently complications of influenza. They constitute a very troublesome form of the disease to the physician and are the source of exquisite suffering to the patient. Fortunately, however, the stomach is, as a rule, only functionally affected, the disturbance of digestion being due largely to the effects of the general disease upon the nerve centers. The treatment necessarily connects itself with the management of the nervous complications and sequelæ. We will not take time to consider them separately and will only remark in passing that it is the duty of the physician by the use of the stomach tube and the most painstaking examination, to determine the true state of the digestive functions.

Of complications, we must view those having a nerve origin as the most important and perplexing. Post-mortem examination of a patient who had died of influenza, revealed serious injury to the brain. Althaus, of London, refers to results of a series of eleven post-mortem examinations. In every case intense hyperæmia of the pia mater at the base of the brain was present. The arteries were distended and the consistence of the brain and spinal cord was increased. In two cases, by Furbringer, the autopsy revealed capillary emboli and hæmorrhagic foci in the lobes of both hemispheres involving the white and gray substance. Mills, of Philadelphia, classifies the organic nervous lesions occurring in the wake of influenza in the following order: neuritis, meningitis, myelitis and cerebritis. He considers no single affection so common as neuritis, occurring in every form, as to location and diffusion. By some authors meningitis is said to cause more deaths in influenza than heart failure.

In considering the sequelæ of la grippe with reference to the nervous system, we meet a most difficult question, which I shall not attempt to discuss in detail. In some obscure manner, by many complex influences, the essential virus, bacillus or microbe of the influenza undermines the nerve centers, weakens the nerve force and exhausts the vital energies, disturbing the functions of important organs.

To name, number, classify and explain the nervous consequences of la grippe is a task too great to be undertaken. While their number and variety is legion, still we believe a careful consideration will show that they result from the exhaustion of the power of the nerve centers, due to the effect of the essential poison upon nerve structure. Cephalalgia, trigeminal neuralgia, insomnia, loss of memory, cardiac weakness, indigestion—in a word, functional derangement of all the organs, can in a vast majority of cases be traced back to a neurotic origin. If a careful examination does not reveal any central cause, then the task may be wonderfully simplified by

regarding all as forms of exhausted nerve force or vital power.

While scientific pharmacy and experimental therapeutics are giving us new remedies monthly, it is our duty to scrutinize them closely and give our patients the benefit of whatever is trustworthy, but at present I do not believe we can do better than place our main reliance upon our friends of other years, strychnia, iron, quinine, cod-liver oil and phosphates.

These cases in their multitudinous characters will afford opportunity for the largest experience, the most profound learning, and the soundest judgment.

There is change of location, out-door life and exercise; there is the rest treatment, massage and electricity.

I wish to name one simple remedy I have found of great benefit, especially in the case of patients in advanced life when the waste products are becoming more and more retained, the coatings of the vessels filling gradually; in these cases I urge the patients to use hot water freely—to drink all the stomach will retain. It is frequently surprising how soon improvement appears.

The last division of the subject, prophylaxis, will detain us but a few moments. Having applied the teaching of modern scientific hygiene in an intelligent manner to the case, and given careful attention to the mucous lining of the nose and throat, the medical attendant has about performed his duty.

For a scientific prophylaxis we must look to the faithful pathologist and bacteriologist. We have good grounds to hope that at no very distant period the true nature of epidemic influenza will be so settled that in common with many other epidemic diseases it will have to yield to the control of scientific medicine.

CROUPOUS PNEUMONIA.*

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The case illustrates a clinical type with which one should become perfectly familiar, as it is unusually typical of the disease with which it is connected—so much so that, after seeing a few such specimens, one will often be able to pick out a case without making a physical examination.

The patient is 25 years old, a Swede, by occupation a laborer, unmarried. The family history is negative except that his father died of consumption. The patient has no alcoholic nor specific history, and he was strong till three years ago when he had the grippe which confined him to bed for a week. Eight days ago he took cold but did not pay much attention to it and continued to work throughout the rest of the week, that is from Tuesday to Saturday inclusive. Sunday morning he got up at half-past eight but returned to bed at eleven. Asking him why he did not remain up, he says, "Sunday, I freeze." This is plain; he had a chill. On further questioning we learn that he did not shake with cold, but that he had a sense of freezing about the lower part of the chest most of the time from Tuesday till Sunday. On Sunday afternoon he developed a sharp pain in the right side, and that same evening he was admitted to the hospital with a pulse of 120, temperature of 104°, and his respirations were 38 to the minute.

Commonly, at this stage of the disease the pain is agonizing, the patient is unable to take a deep breath and the respiration being superficial, is necessarily rapid. The respiration is, generally speaking, more rapid in this disease than in any other, being often half or more than half as rapid as the pulse. Here, with a pulse rate of 120, the respirations were 38; when the pulse fell to 110, the respirations were 40. The patient says that he felt an inclination to cough but that he could not on account of the pain in his

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chest. The temperature to day was 102°, and last night it was 103°.

The sputum is also quite characteristic. You can see that it is of a dull reddish-brown color and of the consistence of glue, stringing from the cup and receding without breaking when I attempt to stop the flow by tilting the cup. Such sputum is typically so tenacious that it will stick to the bottom of an inverted cup. This test, I am unable to show you, since we always keep some antiseptic liquid in the sputum cups.

We have had this winter in Buffalo, an epidemic of influenza comparatively mild, when we consider the severity of the epidemic in the winter of 1889—90, but not so mild as many of the patients might wish. The papers are full of the occurrence of grippe elsewhere. I believe that this patient had an attack of grippe last week. Grippe is often followed by pneumonia unless the patient takes to his bed and receives proper treatment. The pneumococcus is almost almost present in the mouth and it is largely a question of accident whether it remains as a harmless foreign body or whether it becomes implanted on the soil furnished by the inflammatory process of the influenza.

On percussing over the chest, there is a great difference between the two sides. On the right side, the note is high pitched, rather tympanitic and not voluminous. On the left side, the heart interferes with the resonance of the lung tissue so that the comparative difference is not as great as we might expect. There is not as much fremitus over the right lung as over the left. This is not typical, but we must take the physical signs as we find them. Sometimes, on account of pain, the diseased side will be held much more fixed than the other. Sometimes breathing with the diaphragm is less painful than if the intercostal and abdominal muscles are used and, hence, the respiratory movement will be almost entirely limited to the diaphragm. This patient's respiration is largely abdominal, the chest scarcely rising at all. Over the lower lobe of the right lung there is loud tubular breathing accompanied by a rather coarse râle, which is, however, of the nature of a crepitant râle. Day by day there will be a diminution in the tubular element of the breath sound. It is less to-day than yesterday. Still we must consider the possibility of the invasion of another part of the lung and, if this occurs—I sincerely hope that it will not—you can hear the pneumonic process in its most recent stage. The right lung is recovering so rapidly now, that I think the man would be able to withstand the invasion of another part of the lung, even an entire lobe, if it were delayed a few days.

The general aspect of the patient shows that he is suffering from a serious infectious disease. Notice the characteristic nasal respiration, the alae nasi working with each inspiration, showing that a state of partial suffocation exists.

You will observe that the patient has been cupped, the ecchymotic spots appearing conspicuously but not interfering with the conductivity of the sounds of the lung. I believe that derivative treatment, in the general sense of the word, is excellent. In addition to the use of dry cups, some other milder counter-irritation may be used, and mustard is a good and simple remedy. The bowels should be kept open by salines or a mercurial. It is common practice to give some ammonium preparation with the idea of making the sputum less viscid and capable of expulsion. I believe that opiates are indicated in this disease; not to a degree sufficient to narcotize and render the patient insensible of the need of oxygen, but sufficient to prevent the irritation of the centers on account of the pulmonary inflammation. We should, in general, prevent the excessive working of an inflamed organ. We would protect, involuntarily, any external organ that was involved in an acute inflammation, and I believe it is rational to limit as much as possible the working of the heart or respiratory apparatus under similar conditions of disability.

Monuments to Women.

Hitherto in France Joan of Arc has been almost the only woman to mount upon a marble pedestal, but the privilege is being extended. At Vitres a statue is being raised to Mme. de Sevigne, and at Valencinnes a similar honor is in store for Mlle. Duchenois. Apropos of these facts a French writer observes, "Woman being, even in marble, so much more decorative than ourselves, one can only rejoice over the advent of feminine statues."

COMMUNICATIONS.

ATONIC DYSPEPSIA.*

A. L. BENEDICT, A. M., M. D.,† BUFFALO, N. Y.

This term, a few years ago in common use, has, in the last two or three years, fallen into reproach as indicating slip-shod methods of diagnosis. At times, when circumstances have prevented thorough investigation and symptoms have pointed plainly to a dyspepsia and to a general loss of tone, the term has almost thrust itself upon me and I have used it apologetically, yet reflection fails to show why an apology was necessary.

So shrewd a clinician as Dr. Wm. Pepper has recognized atonic dyspepsia as a type and has characterized its symptoms as follows: A large, flabby, tooth-marked tongue, not necessarily coated; languid appetite; after eating, a sense of weight referred to the epigastrium; following this, distention of the epigastrium and abdomen from the development of flatus by fermentation of the gastric contents lying too long in the stomach; depending on the flatus, eructations and borborygmus; a sense of heaviness and dulness following meals; a full and often, moderately tender abdomen; sluggish bowels; urine containing an excess of urates; lack of nourishment and, consequently, general enfeeblement and pallor; relaxation and low tone of the whole system, of which the indented tongue is an index.

The protest against the term, atonic dyspepsia, is due to a tendency, excellent in itself, to employ analytical and objective methods of diagnosis. But much may be learned from subjective symptoms, and analysis, to be of practical value, must be followed by synthesis.

It is convenient and abstractly correct to classify functional gastric disturbances into motor, secretory, sensory and absorptive, and to recognize under each head an elevation or depression of function. But we must not imagine for a moment that we have to deal with eight corresponding types of dyspepsia nor indulge the vain hope of finding remedies whose actions are as delicately shaded as the subtleties of our classification.

The sensibility of the stomach is normally so vague that it can scarcely be below par and, excluding pure neuralgia and hysterical hyperesthesia, an increase of sensibility points to some motor or secretory trouble. Anatomists have discovered no difference between the innervation of the muscular and the glandular elements of the stomach, and we can scarcely imagine a perversion of one function without a similar change in the other. Absorption depends, first, upon perfect digestion; secondly, upon the circulation of blood and lymph; thirdly, upon various mysterious osmotic conditions. It is very questionable if we have any reliable test for absorption further than noting the condition of the stomach contents and the general nutrition. It is certain that we have no means of stimulating absorption without also stimulating secretion and motion. It is altogether likely that absorptive failure does not occur if digestion is perfect.

Dr. Pepper, the master of clinical medicine, although he defines atonic dyspepsia as that form in which the muscular coat is *the* element affected, immediately contradicts his definition in the typical picture which he draws. The gaseous distention is not due to a paralyzed muscular wall, but to the work of microörganisms of fermentation growing in the absence of hydrochloric acid. The sense of dulness, the loaded urine, the lack of nourishment, and consequent general enfeeblement, are due, not to muscular weakness, but to perversions of secretion and absorption.

Ewald insists on the use of the term gastriatony in the limited muscular sense,

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but his brief discussion, from which case reports are conspicuously absent, only confirms the belief that the condition is purely an abstraction or of phenomenal rarity.

If the secretions are perfect, what serious effect can follow from any moderate degree of gastric sluggishness? The time at which the stomach empties itself into the intestine differs widely with individuals and with variations of diet. So long as no chemical indigestion occurs there is no disease. Neither can the lack of churning amount to much if secretion is normal, for thousands of persons in perfect health do not masticate properly, and if the gastric juice can penetrate to the center of an unchewed lump of meat, it can certainly permeate a soft mass with very little aid of muscular contraction.

I believe we may substitute for the complicated classification of gastric neuroses which some authorities have suggested, the very simple one of atonic and irritative types, in which muscular and glandular functions fall or rise together, while the sensibility is merely symptomatic. Occasionally a unique case may arise to justify the more complicated nomenclature.

In atonic dyspepsia there is a diminished secretion of hydrochloric acid, a delayed and insufficient peptonization of proteids, a corresponding delay in absorption, and more or less sluggishness of the gastric muscle, with constipation indicating a similar intestinal weakness.

In the opposite, irritative type, there is an increase in the secretion of hydrochloric acid, an excessive capability for proteid digestion, a delay in the conversion of carbohydrates into maltose because ptyalin digestion is inhibited in highly acid media, more or less complaint of pain, and an irritable muscular wall. This neurosis may culminate in self-digestion of the stomach; in other words, in gastric ulcer.

In the former type, the decrease of hydrochloric acid allows the development of microörganisms, which may produce an excess of lactic, butyric and acetic acids, with gases of fermentation. Such cases, to which the term fermentative dyspepsia is applicable, though essentially atonic and sub-acid, may give rise to many sensory and motor symptoms of irritation. In some of these cases there is a predomination of one kind of ferment. Thus, I have found butyric acid persistently present, along with its cause, the bacillus butyricus. Some patients, from the relative excess of acetic acid, speak of themselves as vinegar factories. In still other cases lactic acid is in excess, and even when there is no free acid I have often found a marked ferric chlorid test for lactates. I question whether the lactic acid, found as the result of fermentation, is chemically identical with the normal lactic acid of the preliminary stage of digestion. In fact, some recent investigations of Penzoldt have shown the reaction to be so frequently present in healthy persons after various foods and drinks, that it is very questionable whether it is not produced in the absence of lactates and whether it has any clinical significance.

Except in high grades of acute gastritis, in the late stages of chronic catarrh and cancer and, as death approaches, in almost any disease, there is no failure of rennet and pepsin, the unorganized ferments of the stomach. On the other hand, as these ferments act qualitatively rather than quantitatively, we cannot imagine them to be in excess. Thus there is no excuse for giving pepsin except in those cases in which it is far better to administer predigested food.

The ultimate cause of atonic dyspepsia is constitutional depression. It may be due to overwork and especially to prolonged worry. Sometimes the dyspepsia is the first manifestation of tubercular poisoning. Again, there seems to be an inherent failure of the innervation of the digestive organs. Once established, the dyspepsia is, in turn, the cause of loss of strength, of mental inertia and of visceral weakness. Some degree of simple anemia is almost inevitable. The exciting cause may be an illness of any kind, the excessive use of tea, coffee or other beverages, the lack of proper food, some error in habits of eating; often it is not discoverable.

The synopsis of symptoms by Dr. Pepper needs no addition, but the results of physical examination are important. On percussion, or succussion, or by filling the stomach through the tube, dilatation will be found to be absent, though there may be some relaxation and sagging even as low as the umbilicus. Serious disease of the liver, heart and kidneys would point to the probability of gastric catarrh, which would be verified by finding an excess of mucus in the stomach contents. Chemical

examination of the contents is important: in fact, a positive diagnosis of the exact form of dyspepsia can be made in no other way. If only one or two such examinations are to be made, and more are usually unnecessary, it is best to siphon out the stomach contents an hour and a half after the test meal. The preliminary stage of digestion, in which organic acids and carbo-hydrates are normally present, should be completed in an hour, but it is well to allow an half-hour's leeway for the purpose of excluding slight deviations from the normal. A mixed meal of proteids, cooked starch and fat is given, comprised in a broiled steak or chop, dry bread and butter with a glassful of water. Raw starches are excluded, since they are not digested till the intestine is reached. In a normal stomach, at the end of even an hour, this test meal will be well on the way to perfect digestion. The butter and meat fat will be recognized as oil globules without rancidity; the starch will have been converted by ptyalin into maltose and absorbed so that neither starch nor sugar will be present in the filtered stomach contents. This filtrate will also contain some albumin, a good deal of peptone and a moderate amount of propeptone, which is a transition form in the digestion of egg and plant albumin, and here represents the nitrogenous part of wheat. The various organic acids of fermentation will be absent, but there will be a strong hydrochloric acidity.

In the ordinary cases of atonic dyspepsia there will be a moderate degree of acidity, but with hydrochloric acid reduced in quantity, and, in a surprisingly large proportion of cases, the usual test will not reveal it at all. Butyric, acetic and lactic acids, with their microörganisms, will be present. Sometimes there will be no free acid but an abundance of lactates. When there is not a high fermentative acidity there is nothing to prevent the digestion of starches by ptyalin, but the absorptive power of the stomach may be at fault so that sugar will remain after the starch has disappeared. If there is much fermentation, undigested starch will also be present. The albuminoids, instead of showing well-advanced peptonization, will be principally represented by undigested albumin and moderate amounts of propeptone and peptone. But it seems that pepsin and hydrochloric acid, having once attacked a particle of albumin, digest it pretty thoroughly before they attack other particles, so that the filtrate may not show a conspicuous lack of digestive power, whereas a simple inspection of the stomach contents demonstrates that most of the meat is untouched. Again, an abundance of peptone may mean, not that proteid digestion is good, but that absorption is weak.

The treatment consists in supplying the deficient hydrochloric acid, which is normally present in the proportion of 2:1000; how much is formed altogether we do not know. If we estimate the stomach contents at 500 c. c. (about a pint), the normal amount of hydrochloric acid is 1 gram, corresponding to a dessertspoonful of the officinal dilute acid. Practically, a tenth or twentieth of this dose usually suffices if given at the time when it is most needed, an hour after eating. If a larger quantity is necessary, it should be given in divided doses, well diluted, sipped at intervals of a few minutes, beginning three-quarters of an hour after eating. The administration of pepsin is a confession of ignorance. The patient should be urged to take common salt in abundance, since it is from chlorids that hydrochloric acid is formed.

To stimulate motor, secretory and absorptive activity, the simple bitters may be used, but I prefer strychnine in two milligram doses, given before meals in tablet and swallowed quickly to avoid the taste. Hot water is also an excellent stimulant, and it may be used to wash down the strychnine, or, if the later is not used, a weak, hot soda solution may be given to excite the opposing acid secretion and to dissolve the mucus in those cases in which an essentially functional indigestion has caused a slight catarrh. Strychnine and hydrochloric acid are usually sufficiently antiseptic to relieve any moderate degree of fermentation. If necessary, resorcin, menthol, salol, etc., may be used. I should like to urge again the use of an oily solution of menthol sprayed through the stomach tube. This treatment, which I first reported in 1892, I have found especially adapted to gastric catarrh and atonic dyspepsia with fermentation. If there is intestinal atony as well as gastric, cascara sagrada may be added to the hydrochloric acid. I do not believe in restricting the diet to any great extent; it

is our business not to reduce the food to the capabilities of the stomach, but to raise the digestive power to the demands of ordinary diet. Tea, coffee and coarse vegetables should, however, be interdicted. Iron and arsenic are usually indicated as general tonics, but often forbidden by the condition of the stomach. Reduced iron, the carbonate or other mild preparations should be preferred. Ordinary hygienic vigilance must be observed.

OCCIPITO-POSTERIOR POSITIONS.*

P. W. VAN PEYMA, M. D.,† BUFFALO, N. Y.

My own experience and that of several of my colleagues, as well as the varying and often contradictory views expressed by writers on obstetrics, lead me to the conviction that the treatment of occipito-posterior positions is a subject which merits further attention.

The comparative frequency of the occurrence of this variety of vertex presentations adds to the importance of this subject. While different statistics naturally vary somewhat, it is generally admitted that fully one-fourth originally present with the occiput posteriorly to a greater or less degree.

Unscientific obstetrics, as practised in these cases, leads to many deplorable results. Penrose says: "If I were to be asked what one obstetric difficulty, in my experience, had caused most maternal and fetal deaths, what one had caused most maternal and fetal accidents, not necessarily fatal,—accidents, however, often making the rest of life worthless, or still worse than worthless, a tragedy,—I think I would say occipito-posterior positions where the occiput had rotated into the hollow of the sacrum, and which had been *improperly treated.*" My own observation warrants similar conclusions.

Proper treatment presupposes and demands correct diagnosis. The early diagnosis of the condition is not only of vital importance, but is also often difficult. The determination of the various positions of the vertex by a recognition of the fontanelles and sutures, implies a practical knowledge not easily acquired. As a consequence the average physician continues to apply the forceps in protracted cases of this kind, regardless of the position, and as though the head were a perfect sphere and the pelvis a perfect circle. Naturally we find that, in numerous instances, the head is drawn through with the occiput posteriorly, where, if the case had received intelligent treatment, or even had been left to nature, anterior rotation would have been obtained with a more favorable result for both mother and child.

I desire here to call attention to the triangular depression presented by the occipital bone, when, as a result of intrapelvic pressure, it is overlapped by the edges of the parietal bones, as being, perhaps, the most characteristic landmark presented by the vertex. In consequence of the varying relation of the body to the head, as well as on account of the inherent difficulties of the method, external abdominal examination is often unsatisfactory. In rare cases it may be necessary to reach an ear, or even the face, in order to arrive at a positive diagnosis.

Regarding the nature of these cases, there can scarcely be any doubt that the large majority should be considered as normal presentations, in which nature is entirely adequate to effect a normal delivery. A very great proportion of these eventually result in forward rotation of the occiput. According to Kehrer, quoted by Schröder, only one vertex in seventy-five is delivered with the occiput posteriorly. Considering this fact in connection with the fact already referred to, that at least one in four vertex presentations originally presents with the occiput pos-

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teriorly, we see that only about one in twenty fails to rotate normally. American statistics give rather less favorable results. This I am inclined to attribute to the greater tendency in this country to interfere—to the earlier and more frequent employment of the forceps.

Forward rotation, or its failure, depends upon many circumstances. With pronounced flexion, strong pains, a normal perineum and the head and pelvis of normal size and shape, we can confidently look forward to natural rotation. In proportion as these conditions are lacking, will the frequency of failure increase. Many cases occurring in my own practice might be cited to illustrate these statements, which are also in accordance with the views expressed by many writers. And yet, while it is maintained that the majority of these cases run a normal course, it cannot be denied that, as a rule, they are unusually protracted and also not rarely call for intelligent intervention. The less easy adaptation of the larger occipital end to the comparatively smaller posterior lateral portion of the inlet, the greater rotation required and the reversed leverage through which the *vis a tergo* is applied, are the more important factors which account for the frequent delays, trying to both patient and accoucheur.

The treatment which may be required varies, naturally, with the stage of labor. The general rule, to maintain the membranes intact during the first stage, applies here with unusual force. Postural treatment, recommended by Reynolds and others, in the expectation of effecting rotation by the force of gravity, has not, in my experience, been very successful. Objections to it are that, if long continued, it causes exhaustion of the patient, and that by calling her attention to the irregular condition it also affects unfavorably her morale. The mental state of the patient is a factor of great importance and one quite frequently underrated or entirely ignored. In arriving at a conclusion as to the necessity for active interference, many circumstances require consideration. Assuming that the circumstances are otherwise normal, we shall do well to leave the case to nature so long as fetal heart-sounds are strong and regular and we have the confidence and co-operation of the mother, the latter based on a good physical and mental state. If, however, the case becomes unduly prolonged and the condition of fetus, or mother, or both, demands interference, it will often be found that the indication is fulfilled by effecting and maintaining more pronounced flexion. The importance of complete flexion depends upon the well-known fact that the lowest point, in this case the occiput, is naturally deflected forward. Flexion may sometimes be brought about by upward pressure, especially during a pain, with the tips of one or more fingers upon the forehead. This procedure may sometimes be advantageously supplemented by external pressure upon the body of the fetus with the other hand. According to my experience this method is less positive in its results, especially when the head is still but little engaged, than it has been made to appear by many writers on obstetrics. On the other hand I have been much impressed with the mobility of the head, even when well advanced into the excavation, if the patient be thoroughly anesthetized. If the former procedure fails to accomplish its object, the patient may be anesthetized and the rectification effected by means of the whole hand. The use of the vectis, or of one blade of the forceps, I have found useful in certain cases. If, by means of the finger tips, flexion is not accomplished; or, if having been obtained, partial extension reoccurs; or, if with complete flexion there is no advance, then more active interference is proper—is, in fact, demanded.

Under these circumstances the patient should be completely anesthetized, the whole hand introduced and partial rotation of the occiput effected, following which the forceps may be applied advantageously, less for the purpose of immediate traction than to maintain the position of the head. It may even be a question whether this is not the proper treatment when it has become necessary to introduce the whole hand, rather than to limit the operation, as has just been explained, in certain cases to the production of flexion.

Podalic version is an alternative which naturally presents itself for consideration. I am satisfied that, except in cases demanding rapid extraction, version by the feet cannot compete with the procedure described. In addition to the conditions commonly enumerated as more or less contra-indicating podalic version and mak-

ing it dangerous for either mother or child, primiparity should also be considered, especially in its relation to fetal mortality by its interference with rapid extraction of the head.

In the application of the forceps following partial rotation, it may frequently be well to rest satisfied with an approximately correct relation of the blades to the head, to be followed by a more perfect reapplication after the head has descended and rotation also, perhaps, further advanced.

The application of the forceps without previous rotation and with tips to forehead in the expectation that the occiput will rotate posteriorly, should be avoided wherever possible and limited to those cases where the head is so deeply and firmly engaged that rectification is impossible or dangerous.

The application of the forceps reversed to the occiput, thereby producing flexion, I have never tried. The procedure is one, probably, rarely to be preferred.

Where the circumstances demand the application of the forceps, with the occiput posteriorly, the blades should be applied rather farther back than in occiput anterior positions, the object being here, as in face presentation with the chin anteriorly, to obtain a larger and firmer hold. The handles will, therefore, be less depressed in these cases. Tractions, under these circumstances, should be backward according to the axes of the succeeding planes until the head reaches the perineum, then sharply forward, using the symphysis as a fulcrum, maintaining extreme flexion until the perineum slips over the occiput when the handles are suddenly dropped and the forceps removed.

This condition is the analogue of face presentations with the chin backward. In both, the presenting part must travel a long distance before the mass engaged can be resolved—in the one instance by extension, in the other by flexion—into its component factors, the head and trunk. Necessarily the dangers to both mother and child are greatly increased.

In conclusion, I desire to emphasize the vital importance of recognizing the position in vertex presentations. To insist that, as a rule, cases of occipito-posterior position should be left for the natural forces to effect delivery—forces which, in the vast majority of cases, are not only entirely adequate, but in these cases will accomplish the object better than the most skilled instrumental or manual interference.

Further, I desire to maintain that flexion is essential to natural rotation; that rotation is frequently delayed until the head is very low; that the character of the pains is a very important factor; that with complete anesthesia the mobility of the head, even when deep in the excavation, is often quite surprising; that in occipito-posterior position the blades of the forceps must be applied well forward to insure a firm hold; and that, after the head reaches the perineum, extreme flexion must be maintained until the occiput has passed over the perineum; and, lastly, that no hard and fast rules can be formulated to cover all cases, but that much must necessarily be left to the judgment of the operator, based on a consideration of all the conditions involved.

Indications for the Use of Sulfonal.

Among the hypnotics brought before the profession within the last few years, two, Sulfonal and Trional, have been received with much favor. After careful trial each was found to have its own field of usefullness in the treatment of the various forms of insomnia. Of course it is not always possible in any case to foretell with certainty which one of these is likely to prove of most study, although a knowledge of their physiological action throws much light on this subject. Trional acts more promptly, but its effects are dissipated more rapidly, so that the action of one dose is less apt to be prolonged over the following night than in the case of Sulfonal. On the other hand, drowsiness on awaking is more common with the latter. On the ground of comparative study Dr. S. G. Webber (*Boston Medical and Surgical Journal*, May 23d, 1895) recommends Sulfonal especially for that class of patients who have no difficulty in going to sleep when they first go to bed, but wake in a short time and lie awake two, three or four hours, or may have no more sleep that night. In these cases Sulfonal does not interfere with the first early sleep of the night, and acts later, so that the patient does not wake at midnight as usual. Given in small doses, not more than five grains, he has also employed it with advantage to quiet restlessness in neurasthenia, hysteria and mania.

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SATURDAY, JULY 27, 1895.

EDITORIAL.

THE IMMEDIATE CARE OF PERSONS FOUND UNCONSCIOUS ON THE STREETS.

It is not unusual to see in the daily papers as an item of news, an account of some person found unconscious on the streets of a city, whom the police have arrested and locked up on the charge of being "drunk and disorderly" only to find out subsequently, and generally too late to remedy the mistake, that the prisoner was unconscious from some injury or illness and not at all drunk. The incident is of course used to adorn a tale of the ignorance, the carelessness, the brutality, or all three, of the police force, and to point a moral from the dangers of delay in applying suggested remedies. All of which is forgotten until a similar accident affords an opportunity to fill more or less space in the news columns.

It is a shameful commentary on the humanity of nineteenth century civilization that one sick and unfortunate if rendered absolutely helpless through lapse of consciousness in any civilized community, even though the individual be unknown, should be liable to the pains and penalties awarded a common drunkard. The fault however does not lie with the ordinary police officer nor even with his immediate superiors, but altogether with the governing powers of the municipality. It is no excuse to admit that of persons found unconscious in the street, nine out of every ten are dead-drunk; nor to allege that if experienced medical men are not always able to determine at sight the cause of unconsciousness much less can the ordinary patrolman be expected to discriminate. Neither is the situation relieved by the fact that the alcoholic is unworthy to receive the ministrations of benevolence designed for the relief of the sick and unfortunate, and that hospitals dependent upon charitable contributions are justified in refusing to divert from their intended application their meagre funds for the purpose of affording the drunkard expensive

accommodations for recovery from a debauch.

It would seem that such a blunder, a blunder which amounts to a crime, could easily be avoided in any one of a number of practical ways. The Medical Society of the County of Kings took the matter into consideration a year or more ago and appointed a committee "to report to the society what means have been provided in the city of Brooklyn for the immediate care of persons found unconscious on the streets." The committee made report, and was authorized to issue a circular, in which should be embodied its recommendations, and to send the same to the medical journals, to the managers of the different hospitals of the city, and to such other organizations as it might deem wise.

In accordance with these instructions, the committee prepared the following circular, which it recommends to the consideration of the members of all medical societies, as being largely instrumental in shaping public opinion; to Health Boards, as being the power appointing in many instances ambulance surgeons; to managers of hospitals, as having in some measure the same appointing power, and especially as being the authorities receiving and caring for accident cases; and to the police authorities, who are principally instrumental in summoning aid for those who are injured or taken ill in the streets.

RECOMMENDATIONS.

1. Whenever a person is found in an unconscious or semi-conscious state on the street, or elsewhere, away from his own home, the police, when notified of such case, shall immediately summon medical aid; sending for the ambulance surgeon, or for the police surgeon; or in towns, where there are no such officials, then for the nearest physician, who should be compensated for his services by the authorities.

2. The police shall not decide as to the disposition of such a case, but must await the decision of the ambulance surgeon, police surgeon, or of the physician called, and must act in accordance with such decision.

3. A police officer who acts in opposition to such decision should be by the ambulance surgeon, police surgeon, or the physician, reported to the Police Commissioner, who should subject such officer to discipline, rules governing such cases having previously been made and promulgated.

4. Ambulance surgeons should give prompt and immediate aid to patients found in the condition hitherto described, and remove them to the nearest hospital, or to their homes when ascertainable, according as their judgment dictates is the best course to pursue in the interest of the patients. The existence of an alcoholic complication in the case should in nowise adversely influence the surgeon or physician called as to the disposition of the case, as such a complication often renders skillful medical treatment the more imperative.

5. Ambulance surgeons, and other medical men, brought in contact with cases in which alcoholism is a frequent complication, should be reminded that this condition often renders an immediate diagnosis impossible in the most serious and oftentimes fatal forms of cerebral disease and injury, as well as in other diseased conditions.

6. The examination of ambulance surgeons should include the differential diagnosis of alcoholic coma from other forms of coma, and the various diseases or injuries that may produce a condition simulating alcoholic intoxication.

7. Hospital authorities receiving financial aid from the city should not refuse admittance to patients suffering from supposed alcoholism, for in so doing they are liable to be contributory to the death of such patients. They should know, that if the condition be one of uncomplicated alcoholism, this fact will in a short time be revealed, and other disposition may be subsequently made of the case; while, if the patient is so affected as to need immediate and skillful treatment, his rejection by the hospital authorities may conduce to a fatal result. If they refuse to receive such cases, because complicated with alcoholism, they should be held legally responsible for the results. And, further, if such refusal is persistent after their attention has been called to the matter, the city authorities should strike the

name of such hospital from its list of beneficiaries.

8. The municipal authorities should also consider the question of the establishment of a special emergency hospital, or hospitals, conveniently located with reference to the various districts of the city; or a system, similar to that of the Bureau d'Admission in Paris, connected with which there is a special hospital for all cases of alcoholism, or cases complicated with alcoholism, that may occur in the streets of that city. Or, the authorities might consider the establishment of a special department in connection with the hospitals of the city, similar to the "Alcoholic Wards" of Bellevue Hospital, New York, where more than 4,000 alcoholics are annually treated. Such a plan would relieve the general hospitals of the burden of such cases, or compel them to make special provision for their care. Should the existing methods prove inadequate, the Committee recommends some such plan as is here outlined.

It is the hope of the Committee, now that the attention of all concerned has been specifically called to the matter, that they will co-operate in such a manner, by adopting rules and otherwise, so that methods will prevail in Brooklyn and other cities in the management of cases of the nature described, such as exist in most European cities. If this is done, then persons who are rendered unconscious from any cause on the streets or elsewhere, will receive prompt medical and humane treatment, and will escape the danger of being thrust in a cell as "drunks," and there left to sleep off the supposed debauch, which in no inconsiderable number of cases has proved to be "a sleep that knows no waking."

The recommendations of this circular are in keeping with the spirit of the resolutions already adopted by the Medical Society of the County of Kings, and with the practice pursued in the principal cities of Europe. No attempt has been made to treat the subject exhaustively, or to give in detail rules and regulations, which can only be done by the respective authorities of a municipality. It is hoped, that wherever a similar defect exists, similar remedies will be applied. We invite the aid of medical societies and the medical and secular press in procuring the desired reformation.

ABSTRACTS.

APPENDICITIS—GENERAL CONSIDERATIONS.

Dr. George R. Fowler, in a lecture delivered at the New York Polyclinic says: In taking up the subject of appendicitis, let us begin at the beginning as nearly as possible, by briefly considering the anatomy of the parts concerned in the disease. The caput coli is the initial portion of the colon, and that portion of it which lies below the level of the ileocæcal valve is known as the cæcum. This is a rounded-out pouch, its transverse diameter being about three inches, and its vertical diameter about two and one-half inches. Early in intra-uterine life, it is located behind the umbilicus. There is a surgical importance to this fact, as we shall see later on. About the sixth week of fœtal life it descends in a right oblique direction, until it finally reaches the right iliac fossa. Sometimes it overhangs the brim of the pelvis, and is located to the inner side of iliac vessels, in which case it is beyond the right iliac fossa and nearer to the median line. Its direction is somewhat oblique, as a usual thing, but this is governed to some extent by whether it is full or empty. When it is empty it assumes the vertical direction, and when it is full it is more oblique. The ascending colon and the cæcum are marked by peculiar bands,

three in number, one located almost posteriorly, the second latero-posteriorly, and the third anteriorly. These fibrous bands seem to be placed there for the purpose of increasing the capacity of the colon without increasing its length, because you know that the colon at this point seems to be made up of a number of sacculations, communicating with each other, and held together by these longitudinal bands. The cæcum itself is round, like the large intestine, and upon its mucous surface there are open and closed follicles.

The vermiform appendix is attached to the lower part of the cæcum, of which it is apparently an undeveloped remnant. Early in uterine life, the appendix, cæcum and large intestine are one simple tube. The glandular structures of the appendix are precisely similar to those of the cæcum, although they occupy a much smaller area in proportion to their number. That is to say, they are crowded more closely together.

The appendix is made up, in a general way, of the same character of structures as compose the colon and cæcum; these consisting from without inwards, of (1), a peritoneal investment; (2), a longitudinal nonstriated coat; (3), a circular coat, with muscular fibres and sub-mucous and mucous membrane. In the connective tissue beneath the mucosa there are developed a number of closed follicles, and in addition to these, a varying quantity of adenoid tissue, that peculiar tissue composing certain structures which in all probability have in the process of evolution long since ceased to possess any function. For example, you will recall the fact that in the throat there are certain functionless structures, namely, the tonsils, which are composed of adenoid tissue. The peculiarity of this tissue is, that it possesses a very slight amount of vital resistance compared with structures which possess a function. In the sub-mucosa of the appendix, adenoid tissue is so frequently found that its presence is considered typical of appendicular structures. It sometimes is present in such large quantities as to force the mucous membrane towards the lumen of the appendix, producing little irregular elevations upon the mucous surface. In the appendix also will be found the characteristic mucous follicles. The appendix, in many instances, is largely muscular, yet the circular muscular fibres are often entirely absent. Austin Flint is responsible for the statement, that there are no circular muscular fibres in the appendix; others assert that circular muscular fibres are present. In some cases which I have investigated I have found the circular muscular fibres present, and in other cases absent. Probably, in the majority of cases, some are present. The discussion of this question is interesting to us at this time, from the fact that Talamon, a French writer, makes the assertion that the first symptom of appendicitis, namely, the colicky pains radiating through the abdominal region, are due to the effort on the part of the appendix to expel, through the action of the circular fibres, fecal matter which has found its way into the lumen of the appendage. I have frequently operated for appendicitis in cases in which, although the characteristic pains were present, no fecal matter in the appendix could be found. Furthermore, I have in some instances found a stenosis existing under these circumstances which would have absolutely prevented the return of any fecal matter from the interior of the appendix into the cæcum. Another explanation of the colic, based upon the assumption that the circular fibres are present, is that the effort on the part of the enterolith to gain access to the appendix is resented, and that the pain is the result of the contraction of those fibres. I believe that this explanation is purely fanciful. The longitudinal fibres in the appendix are very scanty. They are of the non-striated variety, and evidently have no special function or importance in the production of the disease. The peritoneal investment of the appendix is of the greatest interest to surgeons. In about fifty per cent. of the cases, the peritoneal investment is such as to completely cover the appendix like the finger of a glove covers the finger. Or this may not be so complete, and the appendix, lying upon the iliac fascia, may be but one-half or three-quarters or four-fifths covered by this investing serosa. In other instances it is entirely extra-peritoneal, being located in the connective tissue behind the peritoneum, and acting as a sort of anchorage for that portion of the colon to which it is attached. In about eighty per cent. of cases it possesses a mesentery of its own. It may be but partly covered by

peritoneum and yet possess a mesentery. This mesentery has its point of attachment on one side of the last portion of the ileum as it enters the ileo-cæcal valve; another angle of this triangular meso-appendix is attached to the appendix itself, and the third angle is represented by a free border. This free border is curved and, practically speaking, ends near the termination of the appendix itself; from this point on to the tip a little fringe is usually present. The blood-supply of the appendix is of some importance. The small loops which are derived from the ileo-colic vessels meet and form a proper appendicular artery, which passes along the mesentery on its free border and gives off three or more vessels to the appendix itself. In the female, there is a slip of peritoneum which passes from the broad ligament to the mesentery of the appendix, and is called the appendiculo-ovarian ligament. This fact is of importance, because until the existence of this ligament with its increased blood-supply, was discovered, it was difficult to account for the fact that eighty per cent. of the cases of appendicitis occur in males, and twenty per cent. in females. You will readily appreciate the fact that in an organ of this character, which is but slightly endowed with vital resistance, made up of structures which have long ceased to possess a function and which are undergoing a process of retro-metamorphosis—that in such an organ a diminution in the blood-supply by establishing a *locus minoris resistentiæ* will govern in a large measure the accidental occurrence of inflammatory changes.

The attachment of the mesentery to the appendix is not always in a straight line, and the several portions of this three-cornered web are not always of the same length; therefore it follows that the appendix, which is quite movable in the peritoneal cavity, instead of falling in a straight line, may be of a periwinkle or cork-screw shape, because of the shortening of different portions of the mesentery. This curature or angulation of the appendix may interfere with the blood-supply of the organ, resulting in rapid inflammatory changes, ulceration and gangrene.

The direction of the appendix is of some importance. The symptoms of the disease are sometimes largely governed by the direction in which the appendage lies. Generally speaking, it will have one of four cardinal directions, with perhaps some slight modifications. It may pass directly upwards, behind the colon, or to its outer wall. Or it may have a directly opposite direction, hanging downward over the brim of the pelvis. Again, it may pass across the median line and the iliac vessels, with its tip lying in the left iliac fossa. Lastly, it may pass directly outwards towards the brim of the pelvis and anterior superior spinous process From these four cardinal points there may be numerous slight modifications. This mobility of the appendix and the constantly changing position of the colon itself, accounts for the fact that in certain cases of recurrent appendicitis, the tenderness in one attack is in one portion of the iliac fossa, while in another attack it is in another portion. These modifications involve some points of clinical interest. For example, when the appendix passes from its attachment at the cæcum towards the ileum it may become wrapped around the last coil of ileum and produce intestinal obstruction. Again, it may pass directly across the iliac vessels, and by infection of the veins give rise to phlebitis with thrombo-stasis, and oedema of one or both lower extremities. Again, it may pass down between the rectum and bladder and give rise to paracystitis or pericystitis. It may pass upwards alongside of the colon in the direction of the liver, and give rise to symptoms, which, from the location of the pain and tenderness, suggest the possibility of the existence of an inflammatory condition of the gall bladder, or the liver itself with hepatic abscess.

Affections of the appendix in former times were known as typhlitis (inflammation of the cæcum), and as paratyphlitis (inflammation of the connective tissue about the cæcum), and perityphlitis, or an inflammatory condition of the serous covering of the appendix. Inflammation of the connective tissue about an appendix extraperitoneally placed is of considerable importance. This tissue rests upon the iliac fascia, which limits the iliac fossa posteriorly: through it pass the iliac vessels, and in front of it is the peritoneum. This connective tissue assumes considerable importance from a clinical standpoint in those patients in whom the appendix lies within the connective tissue itself, because when it is

thus located, the first symptom will not be the lancinating pains due to peritoneal involvement, as in cases where the appendix is freely movable in the peritoneal cavity. This connective tissue is not as sensitive as peritoneum, and inflammatory conditions limited to it may go on to the formation of an abscess without giving rise to colicky pains. Probably many of the so-called cases of peri-nephritic abscess of the older writers where the results of an infection of the connective tissue behind the peritoneum, and that the source of this infection was the appendix. I also believe that many dorso-lumbar abscesses of obscure origin are due to infection from the appendix. The course pursued by these inflammatory processes is oft-times interesting. The abscess may burrow its way along the iliac vessels and point at the crural arch. Or it may find its way down to the crural arch, and then crowd the transversalis facia forward; the peritoneum is forced upward, and an extra-peritoneum abscess is formed. This is the "iliac phlegmon" described many years ago. The suppurative process may extend into the dorsal region; I have seen instances where abscesses which had their origin in the region of the appendix pointed at the angle of the scapula.

The inflammatory lesions of the appendix were first described by Grisolle, in France, in 1839. About the same time a pathologist of Bonn, Albers, described typhlitis and peri-typhlitis, and asserted that these affections had their origin, as the name implied, in the cæcum or the structures surrounding it. Grisolle, however, at that time made the assertion that these iliac phlegmons had their origin in the appendix itself. Later on, Reginald Fitz undertook to investigate in the dead-house the causes of suppurative lesions in the right iliac fossa, and his researches led him to believe that they had their origin in the appendix, and not in the cæcum or its surrounding tissues. Following this came the experiences of McBurney, Bull and Weir, who, acting on Fitz's observations and investigations, undertook to operate early in these cases, before an appreciable abscess had formed; as the result of the combined work of the pathologist and of the surgeon the true nature of the disease was disclosed.

Etiology.—The etiology of appendicitis is a question of some importance and of considerable interest. It is not very long ago since every child was taught to eject the seeds of grapes, oranges, etc., lest they be caught in this little death trap, the appendix, and give rise to inflammation. This theory probably had its origin in the fact that the bits of hardened fecal material which were removed in the course of operations for iliac phlegmon closely resembled fruit seeds. I am convinced, however, that these very rarely give rise to appendicitis. In upwards of three hundred operations for this disease I have never seen but one foreign body which could be properly held responsible for the inflammatory process, and that was a gall stone; in this case the stone had not really entered the appendix, but had become lodged at its orifice and given rise to pressure at this point which interfered with the nutrition of the appendix and producing sloughing. I do not wish to say that foreign bodies never give rise to appendicitis, but I do believe that such a cause is very exceptional. The entrance of hardened fecal matter into the appendix has also been held responsible for the occurrence of this disease. Such cases, I think, are also exceptional. Upon one occasion I found a genuine enterolith in the appendix, made up of lime salts and secretions, and composed of concentric layers successively deposited until it reached the size of a common lead pencil.

The etiology of appendicitis, according to the latest views of the subject, first takes into consideration the fact that the organ is undoubtedly a vestigial structure possessing a very low degree of vital resistance, and for this reason it readily becomes the seat of inflammatory and ulcerative changes. Furthermore, that its blood-supply, in the male at least, depends upon a single branch made up by anastomoses from the colic arteries, and that this is sometimes insufficient to maintain the vitality of the organ. Furthermore, that slight changes in the trophic nerves which accompany these vessels are sufficient to lead to rapid inflammatory changes in an organ without function, and which is undergoing retrogressive changes. It is not considered necessary that a fruit-seed find entrance to the lumen of the appendix in order that appendicitis should occur, although the presence of such a seed or of an enterolith could easily give rise to the disease by

exerting pressure upon the mucous membrane and thus producing necrotic changes.

The appendix itself contains the same micro-organisms that are found in the intestinal canal. The *bacterium coli communis*, the natural habitat of which is the intestinal canal, may, under extraordinary conditions, become the source of a widespread infective process. It has been found in hepatic abscesses, in inflammation of the gall bladder, in purulent cystitis, and in abscesses in the brain. It has been invariably found in the purulent deposits about an inflamed appendix, in abscess cavities in the walls of the appendix, and in the mucous and sub mucous tissues. The *diplococcus lanceolatus* is also found, as well as that peculiar micro-organism which gives rise to the fetid odor of pus accumulations anywhere in the abdominal region where the intestinal walls come in contact with the abscess cavity, namely, the *bacillus pyogenes fetidis*. The process of infection takes place in the submucous connective tissue. It then extends to the wall of the appendix, from which it is carried into the peritoneal cavity, or, if the appendix is surrounded by adhesions, into the mass of adhesions themselves. In the first instance it will give rise to suppurating appendicitis, and in the latter to appendicular abscess.—*New York Polyclinic.*

THE TREATMENT OF CHRONIC HEART DISEASE BY THE SCHOTT METHOD.

The Schott treatment consists of baths containing various mineral substances and free carbonic-acid gas in solution, and of a series of graduated gentle exercises or gymnastics. The patient begins with a bath containing 1 per cent. of chloride of sodium and 1 per 1000 of chloride of calcium, freed from carbonic-acid, gas at a temperature of 92° to 95° F. (33.3° to 35° C.), and lasting from six to eight minutes. As time goes on the proportion of solids and the duration of the bath should gradually be increased and the temperature gradually lowered, until eventually baths containing free carbonic-acid gas and the full amount of mineral constituents are taken.

Dr. Schott believes that the chlorides of sodium and calcium and the carbonic-acid gas passing through the epidermis stimulate the sensory nerve-endings and, by a reflex action on the cardaic nerves and muscle, cause the heart to beat more forcibly and less rapidly. This, however, does not seem sufficient to explain the diminution in size of the heart in cases of cardiac dilatation. It is probable that in such cases the dilatation of the cutaneous vessels, whether by the warmth of the water in the weaker baths or by the action of the salts and bubbles of carbonic-acid gas in the others, causes a lowering of tension in the peripheral circulation, so that the heart has less resistance to contend against. Secondly, the flow of blood to the skin thus determined tends to empty the left ventricle and enable it to contract down more fully and completely on its contents.

Dr. Schott has given directions for the preparation of these artificial Nauheim baths, the essential ingredients of which he considers to be chloride of sodium and chloride of calcium, and, later in the treatment, free carbonic-acid gas. To make the weakest bath, containing about 1 per cent. of chloride of sodium and 1 per 1000 of chloride of calcium, one may take 4 pounds (1.8 kilogrammes) of common salt and one-tenth of that quantity of chloride of calcium to 40 gallons (160 litres) of water. These proportions may be gradually increased, as may seem desirable, up to three times that amount. Ordinary sea-water contains about 2.7 per cent. of chloride of sodium, and is thus nearly as rich in this constituent as the Nauheim waters. It does not, however, contain any chloride of calcium. If the right proportion of this salt were added to the bath, there seems to be no reason why sea-water should not be as efficacious as the Nauheim waters; and it should be superior to an artificially-prepared bath.

It could easily be diluted so as to contain 1 per cent. of salt for the commencement of the treatment. For the production of carbonic-acid gas bicarbonate of soda and hydrochloric acid may be used. Thus, for a bath of 40 gallons (160 litres) one may take about 6 ounces (186 grammes) of bicarbonate of soda and seven ounces (217 grammes) of hydrochlorie acid of B. P. strength to begin with. This would leave an excess of alkali. These quantities may be increased according as it is thought advisable to increase the proportion of gas in the water; so that five or ten times that amount of each may be used eventually. It is best to dissolve the bicarbonate of soda in the bath first and add the acid a few minutes before the bath is taken, stirring energetically. The evolution of gas will continue some five to fifteen minutes, as it takes some time for all the acid and alkalai to come into contact in this volume of water. A pint (½ litre) of water is said to dissolve 16 grains (1.04 grammes) of carbonic-acid gas. Hence, to saturate 40 gallons (160 litres) of water about 1½ pounds (750 grammes) of bicarbonate of soda and 2½ pounds (1250 grammes) of hydrochloric acid would be required, calculating from the atomic weights; but, as this would be too large a quantity to use for practical purposes, and the gas would be given off too quickly, it would be better, where it is desired to have a large amount of carbonic acid in the water to make use of the cylinders of the compressed gas, and allow it to pass through the water in the quantity desired.

The exercises consist of a series of simple movements of each limb and of the trunk made against slight resistance, so that every muscle of the body, as far as possible, is in turn brought into play. The movements should be made slowly and systematically, and a short interval should be interposed between each. They should be stopped if the patient experience the slightest distress in breathing or palpitation or discomfort of any kind; as soon as he is rested they may again be proceeded with. The resistance to each movement should be slight, and should be made by a trained attendant. The movements consist of flexions, extensions, adductions, abductions, and rotations of each limb in turn, and of flexion, extension, and rotation of the trunk. The following is a description approximately of the various movements and of the order which is usually followed in their exercise:—

The patient stands upright with his arms by his side, or if too weak he may sit down. Movements of the upper extremities are first practiced, beginning with the exercise of muscles round the shoulder-joint. The attendant stands facing the patient, ready to direct and resist each movement: 1. The arms are abducted from the sides of the body and raised till they are parallel to one another in a vertical position above the head; they are then brought back again in the same way to their original position. 2. The arms are rotated forward till they are on a level with the shoulder, parallel to one another in front of the body; they are then brought back again to the sides of the body. 3. The arms still being straight, the two hands are made to touch in front of the body at the level of the shoulder, and the arms are then moved outward till they are as widely separated as possible, making with the body the form of a cross; they are then brought back again in the same way. 4. Movements of internal and external rotation at the shoulder-joint are next practiced. 5. The hands being brought on a level with and close to the shoulders, they are pushed forward till the arms are straight and parallel in front of the body at the shoulder-level; they are then brought back again. 6. The forearm is flexed and then extended at the elbow-joint. 7. The forearm is pronated and then supinated. 8. The wrist and each of the fingers and the thumb are flexed and extended alternately, each in their turn. 9. The body is bent forward from the erect position, as in making a deep bow, and is then gradually extended again till the erect position is again attained. 10. The feet remaining fixed, the trunk is rotated first to the right and back again, and then to the left and back in the same way. 11. Flexion at the hip-joint of each limb in turn is made till it is raised as nearly as possible to an horizontal position in front of the body, the knee being kept straight; the limb is then brought back again to its original position. 12. Extension is next made till the leg is raised as far as possible behind the body; it is then brought back again. 13. Each leg is then abducted and then adducted in turn. 14. Exter-

nal and internal rotation of each lower extremity at the hip-joint is performed. 15. Next, in a similar fashion, movements of flexion and extension at the knee-joint are made, and movements of flexion and extension and of inversion and eversion of the foot may be performed.

No movement should be repeated except after an interval. the object of the exercises being to bring consecutively into gentle action each group of muscles in the body as far as possible. The resistance to the movements is made by the attendant taking hold of the limb which is being moved, and gently opposing its movement.

The results of the exercises are similar to those produced by the baths on the circulation and heart. The pulse-frequency is diminished; its volume and force are increased. The area of cardiac dullness in cases of cardiac dilatation is diminished and the size of the liver reduced. Dr. Schott's theory is that, as a result of each bath or series of exercises, the heart is stimulated as the result of a reflex process, so that its contractions become more complete and more forcible; and that, as a result of this frequent stimulation and more powerful action, the heart muscle undergoes hypertrophy, till at length the heart, in cases of valvular disease, becomes competent to cope with the extra work imposed on it, or, in cases of dilatation from debility or other causes, recovers from its atonic condition by the improvement in the quality of its muscular coats.

Cases which are likely to derive most benefit from this treatment are: cardiac dilatation due to overwork or mental worry; mitral disease where the right ventricle is beginning to give way and compensation threatens to break down. In adherent pericardium with symptoms of cardiac embarrassment it should be tried. Cases of aortic incompetence are unsuitable unless symptoms of right-ventricle failure have supervened. Cases of aortic aneurism are unsuitable, as the sudden and frequent changes in the blood-pressure can but do harm. In true angina pectoris this treatment must be practiced, if at all, only with the greatest caution. It may be of service in relieving the embarrassment of the heart by vascular dilatation, and thus act like nitrite of amyl or nitroglycerin; but there is a risk of syncopal attacks in which a fatal issue might result. In cases of fatty heart—that is, fatty infiltration, not fatty degeneration—accompanying general obesity this treatment should be beneficial, and is not attended with danger if carefully carried out.—*Practitioner.*

COMMON FORM OF "WHITE LEG" AFTER CONFINEMENT.

Dr. C. Hubert Roberts before the Obstetrical Society of London, gave details of sixteen cases of so-called "white leg" most commonly met with after confinement, with a short history of the literature of the subject up to the present date. He pointed out the differences observed in most text-books of the present day, and attempted to show briefly that the white leg described in such books is not the common variety met with after delivery. The form he himself had met with most frequently was not white, but livid, and pitted easily. In its production venous thrombosis played the chief part, and previous hæmorrhage in or after labor was the predisposing cause He believed that the term "white leg" included several forms of disease which differed in many particulars, and he proposed the following classification: 1, Cases due to pressure. 2, Cases associated with general disease. 3, Cases of true septic nature. 4, Cases of thrombosis apart from sepsis. 5, Cases of thrombosis and sepsis combined.

The anthor referred in detail to his own (sixteen) cases which followed confinement, and formulated the following conclusions: (a) The form which he called thrombotic was the common variety after delivery, and not the brawny white leg, which was rare. (b) In such thrombotic legs there are not necessarily signs pointing to sepsis, such thrombosis being rather a blood-change associated with or due to severe loss of blood at the time of delivery. (c) The thrombosis in most cases starts primarily in the uterine and pelvic veins. (d) Such

thrombotic legs are not brawny and white, but dusky in color and œdematous, invariably painful, with definite "tender spots," the femoral or saphenous veins being constantly thrombosed. (e) Both legs may be affected, but always one after the other. (f) The onset of the disease is about the tenth to twentieth day. (g) Pyrexia is the rule for a variable period, but does not necessarily indicate sepsis. (h) Such cases run a definate course of about six to eight weeks. (i) Complications are uncommon, but pulmonary embolism is the greatest danger. (j) The prognosis in respect to life is good. (k) The prognosis for the leg itself is not good; the majority, perhaps, get well, but remain permanently damaged.

Dr. Horrocks asked whether the proposed classification should apply only to "white leg" occurring as a sequel of labor. He was not sure that the author had made out a difference between classes 4 and 5,—*i.e.*, cases of thrombosis apart from sepsis, and cases of thrombosis and sepsis combined,—and he asked on what grounds he had arrived at the conclusion that some cases of thrombosis were not due to any form of sepsis If the thrombosis were determined by hæmorrhage increasing the coagulability of the blood, one would expect the thrombosis process to follow immediately on the hæmorrhage. This might perhaps, be explained on the assumption of the clot spreading, but the pyrexia would then have to be accounted for. Again, if white leg were due to increased coagulability of the blood one would expect to find the lesion on both sides at the same time, and not in one leg only or in the one after the other. The most plausible explanation of the left leg being more frequently affected was that the left side of the uterus was more liable to laceration and injury by reason of the occiput generally coming down on that side. He believed both forms of white leg to be due to some form of sepsis. It was possible that in some cases clotting in the veins was more marked than in the lymphatics, while in others the lymphatic element predominated, but this fact did not exclude sepsis. He pointed out that sepsis was not negatived by the absence of any evidence of para- (or peri-) metritis, for the micro-organism might not give rise to any inflammation of the connective tissue.

Dr. G. Herman thought that these were cases of "swelled leg," and not what is technically described as white leg. Thrombosis might exist apart from sepsis, and and this was quite a different complaint from thrombosis with sepsis. It would be interesting to know whether white leg occurred in cases in which thorough antiseptic precautions had been carried out. Unfortunately, they were not in possession of any statistics which enabled them to ascertain whether the affection was less frequent now than before the introduction of antiseptic methods. In the rare fatal cases of phlegmasia alba dolens death occurred in quite a different way from death by sepsis. Swelled leg from thrombosis was a different thing from true phlegmasia dolens, which Dr. White, of Manchester, described as "painful white œdema." His own cases had almost always been treated by applications of belladonna and glycerin, and he had been unable to form any opinion as to the color. Though there was little or no anatomical evidence of the disease being due partly to thrombosis and partly to lymphangitis, there was clinical evidence thereof. The author did not suggest that the loss of blood directly determined the affection, but rather that it favored its production.

Dr. A. Routh suggested that if the author had seen these cases quite in their original state he might possibly have discovered some of the characteristic appearances of true *phlegmasia dolens*. One did not usually see them until the first stage had passed. He related the case of a lady who was seized with acute pain in the left calf, and when he saw her three hours later the limb was two inches larger than the other and presented all the appearance of typical white leg. It was treated by warmth, etc., and by the next morning the swelling had gone down and there was pitting. It was, therefore, quite possible that most of the so-called cases of thrombosis might have begun by lymphangitis. The fact that the affection arose so long after the anæmia showed that it could not be due to mere plugging of the veins, and there was probably, in addition, some change of a septic character,—an assumption which was supported by the rise of temperature. The spreading of the thrombotic process did not explain it either, for he had seen it in cases in which the femoral vein was not obstructed in the least.

Dr. Macnaughton Jones had been struck

by the differences observed in these cases in the date of onset, sometimes early,—i.e., between the seventh and eighth days after labor,—while in others it supervened much later; the rapidity with which the brawny state made itself manifest; the early supervention of the "pitting" stage; the rapidity with which this stage passed off; the degree of pain, the variations of temperature, etc. Personally he had always felt more disposed to adopt Tilbury Fox's view, that the affection began in the lymphatics rather than in the veins, and possibly some of the differences observed might be due to predominance of the changes in the veins and in the lymphatics, respectively. He agreed with the view that the affection sometimes occurred independently of sepsis. Pressure as a cause was proved by two cases which he had met with, in which no symptoms, whatever, of any septic condition were present previous to the characteristic appearances of phlegmasia. This pressure had been accounted for anatomically by the peculiar injuries to which the left side of the uterus was supposed to be liable, but that view did not commend itself to him. He pointed out that on the left side the artery overlay the vein, which was a more likely cause of pressure. He had seen cases occurring independently of labor in which there was no possible septic cause in which phlegmasia had developed. In several it developed in varicose veins of the leg after an illness of some kind, and the trouble probably began in the lymphatics. Oscillations of temperature after labor were often noted quite apart from any complication of this kind; so that the mere rise of temperature was not enough to enable them to affirm that there was sepsis. Moreover, there might be no discoverable condition in the uterus or its adnexes to account for the leg trouble.

Dr. Griffith agreed that there were essential differences between the disease as described in the text-books and those due to simple thrombosis. He did not think the author's explanation was quite admissible as to the cause of the thrombosis. He had examined two cases very carefully, post-mortem, and in both the thrombosis had extended from the uterine sinuses up to the uterine veins. Given the size of the latter, it was quite conceivable that they might be thrombosed without giving rise to any constitutional symptoms, and it was not until there was a sudden interference with the circulation in such a large part as the leg that characteristic symptoms appeared.

Dr. Robinson mentioned that Vidal, of Paris, claimed to have discovered in many of these cases a streptococcic invasion of the thrombosed veins. By others the bacillus coli communis had been incriminated, though of this no direct evidence had so far been adduced.

Dr. Champneys failed to see that Class 1 was necessarily different from Class 4, because pressure would be very likely to lead to thrombosis. He remarked that, in the author's cases of double phlegmasia, the disease commenced in three out of the four on the right side, which in his own experience was quite exceptional.

Dr. A. Giles observed that in only one case was the history of sepsis at all definite, in which there was abscess, with sloughing. That case was one of miscarriage at three months, whereas all the other cases appeared to have occurred after delivery at term. The explanation of the left side being more frequently affected in consequence of the nature of the presentation did not appear to be valid, for, if the downcoming head caused the trouble, its effects would be mainly appreciable on the cervix, and the pelvis would suffer rather than the leg.—*Medical Press and Circular.*

Deaths from Cycling.

In a recent session of the Paris Academy of Medicine, Petit reported three deaths occurring suddenly during the use of the bicycle. The first case was that of a man sixty-five years of age who had begun to ride four weeks previously. He died in the arms of his teacher as he was about to get off his wheel. The second case was that of a physician, aged forty-eight years, who for the sake of reducing a corpulence which had come on after typhoid fever took to cycling. Without previously having complained of heart symptoms he was one day, while on his wheel, suddenly taken with dyspnœa and a severe pain in the heart region. He stopped, sat down on a bench and died in a few moments. The third case was that of an athlete, aged forty years, who died suddenly on the street while cycling. —*Deutsche med. Woch.*

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE

Treatment of Appendicular Colic and Appendicitis.

M. Leon Joubert of Mont Dauphin (*Hautes-Alpes*), in a paper on this subject gave the details of three consecutive cases of cure by rectal injections of glycerin in large doses. He is firmly convinced that this remedy should be employed in every case before attempting laparotomy—an operation less dangerous, it is true, in these days of antisepsis, but often impracticable in the country, in the colonies, or at small military camps, where the physician finds himself without assistants or without the necessary armamentarium.

Cinnamon for Cancer.

The *Cincinnati Lancet-Clinic* quotes from the *Pacific Record* as follows: J. Carne Ross, M.D., physician to the Ancoats Hospital, Manchester, communicates a letter to the *Lancet* of July 21, 1894, in which he gives the results of some experiments he has undertaken on the above subject. Dr. Ross states that while carefully guarding himself from saying anything that would suggest that cinnamon should be regarded as a so-called specific in cancer, yet he has invariably found that where pain was present it ceased, that fetor disappeared, that the general health invariably improved after using the drug. The best results have, on the whole, been obtained where the tumor was cut off from the air by being situated either in the stomach, the rectum, the uterus or the mammæ, where the superjacent skin and covering of the nipple were intact. Dr. Ross then gives particulars of five cases which were under the cinnamon treatment, in each of which marked improvement ensued. The preparation of cinnamon employed was a strong decoction, made by taking one pound of Ceylon sticks and boiling slowly in a closed vessel for eight hours in three pints of water till the water is reduced to one pint, pouring off without straining. The mixture should be shaken up before taking each dose; patient to drink half a pint every twenty-four hours, the half pint to be divided into such doses as best suit the patient.

Weak Heart.

Dr. J. M. DaCosta, (*Univ. Med. Mag.*,) recognizes the following varieties of weak heart: That dependent upon degeneration of the cardiac muscles, especially the fatty heart. That connected with dilatation of the heart. That resulting from the action of certain poisons on the nervous mechanism of the heart. That due to an intrinsically weak muscle, and finally, that resulting from nervous exhaustion.

Collective Investigation on Anæsthetics.

GURLT, of Berlin, states that the collective investigation has now been going on for five years. This year 52,677 new cases were reported, of which 31,803 were chloroform narcosis, with 23 deaths, and 15,712 were ether narcosis, with 5 deaths. In 2,148 cases narcosis was produced by a mixture of chloroform and ether, in 1,554 by the so-called Billroth mixture, in 1,425 by ethyl-bromide, and in 34 by pental. The use of ether has much increased. The mortality from chloroform seems to be much greater than that from ether; but very often grave disorders of the respiratory organs, such as pneumonia and bronchitis, result from the inhalation of ether, and death from those complications ought to be regarded as equivalent to death under anæsthetics. Ether was especially harmful after laparotomy.

DR. SCHLEICH, of Berlin, explained his theory of the action of anæsthetics. According to him, they are more dangerous the more their boiling-points differ from the temperature of the body. He has devised an anæsthetic mixture (chloroform and petroleum-ether) whose boiling-point is the same as the temperature of the body, and states that he has obtained excellent results, all the disagreeable symptoms (vomiting, etc.,) being absent.

DR. ROSENBERG, of Berlin, recommended that the mucous membrane of the nose be brushed with a solution of cocaine before the commencement of the narcosis.

DR. REHN, of Frankfort, gave a warning against the use of chloroform near a gas-light, as ethylene-chloride is formed.—*Lancet.*

Treatment of Epitheliomata.

Professor John A. Wyeth, M.D., in a clinical lecture delivered at the New York Polyclinic and published in the *International Journal of Surgery* for May, speaks of the benefit he had derived from the use of arsenious acid in the treatment of the superficial epithelioma. He says: "If I had a superficial epithelioma develop anywhere on my body where I could use Marsden's paste I would prefer that method of treatment to the knife. In cases where the disease has existed for so long a period that the paste alone cannot be relied upon, I would prefer to have the malignant process first cut or scraped away, and then have the paste applied. In this way we get more satisfactory results than by any other treatment I know of.

"The formula for Marsden's paste, which I

have given a number of times, is as follows:

Acid arsenious.....	2 drams
Pulv. gum arabic	1 dram
Cocaine muriate.....	18 grains

This powder should be made into a paste by adding water, when it is to be used: and the paste should be of the consistency of rich cream, and applied to the wound on a small piece of cloth, and left on from eighteen to thirty-six hours. This can be repeated as often as necessary. The above is the formula for the stronger paste. In the weaker, only one dram of arsenious acid is used, and twelve grains of cocaine."

Alcoholic Applications in Phlegmonous Inflammation.

According to Salzwedel (*Deut. milit. artzl. Zeit.*, 23) under constant application of dressings of 60 to 90 per cent. alcohol, phlegmonous inflammations of the milder sort undergo almost abortive resolution, while severer cases show unusually rapid softening, and terminate early in circumscribed abscess containing thin pus. The details of the procedure are as follow: After the skin has been washed with ether, and any wound present covered with an antiseptic mull, a moderately thick layer of absorbent cotton wool, soaked in the alcohol, is applied, and over it some waterproof material, perforated or cut in strips so as to retard but not wholly prevent evaporation. The application is renewed daily, and should be continued a few days after subsidence has begun.

SURGERY.

The Treatment of Hydrocele.

The treatment of hydrocele by the injection of irritating substances is sometimes very painful. The use of cocaine as a local anæsthetic in the ordinary was not being free from danger. Nicaise has since 1889 (Acad. de Med., June 4th; *Sem. Med.*, June 5th) employed the following method:—The usual antiseptic precautions being taken, the hydrocele is punctured with an ordinary tocar; about one-third of the fluid is allowed to flow away, then 3 to 4 c.cm. of a 1 per cent. watery solution of cocaine is injected into the bulk of the serous effusion remaining in the sac, through the canula of the trocar with a syringe of the capacity of 4 c.cm. The scrotum is then gently manipulated, and after waiting four or five minutes the remainder of the serous fluid is drawn off. Next tincture of iodine, either pure, or mixed with one-third of water, according to the age of the hydrocele and that of the patient, is injected. The scrotum is again gently manipulated, and after four or five minutes the iodine is allowed to escape. The operation done in this manner is painless. The method has the advantage of utilising a natural aseptic fluid as the excipient of the injection. Moreover, the quantity of cocaine absorbed by the serous surface is less in the case of a serous solution than of a watery solution of the medicament of the same strength.—*Brit. Med. Jour.*

Compound Tincture of Benzoin in Surgery.

Dr. J. L. Garland Sherill (*Amer. Therapist*) highly recommends compound benzoin tincture in cases of injuries about the hands, especially those by machinery. The manner of application is as follows: After careful cleaning and disinfection of the wound and complete arrest of hemorrhage, a layer of absorbent cotton is placed around the wound, over which the tincture is poured until the cotton is saturated. This forms an air-tight aseptic coating after evaporation of the alcohol. This dressing is claimed to be very advantageous in the practice of the country physician, because it need not be frequently changed, and can sometimes be left on for a week without inconvenience. If it becomes loose, a little more benzoin tincture may be added by the patient.

Treatment of Sebaceous Tumors.

Many people, the subjects of congenital sebaceous tumors and "wens," object to having them removed, on the score that the remedy is worse than the disease, and the after consequences may be serious.

The following is the method which Dr. T. Murray Robertson has adopted in such cases, and with marked success (*Brit. Med. Jour.*): With a cataract knife (Graefe's) puncture the cyst, and gently squeeze out the contents. Then introduce a very small piece of nitrate of silver. On the following day, by means of a pair of forceps, the capsule of the cyst can be withdrawn, just like the shell of a bean, without any portion being left adherent. In no case has there been a return of the growth or any ill effects.

The method, if tried, will be found to have many advantages, aside from its simplicity and thoroughness.

Operations for Cancer.

Dr. Roux, of Lausanne, discussing this subject, remarks that the former teaching concerning constitutional cancer, the absence of antisepsis, and the fear of relapse discouraged the most intrepid surgeons from attempting on malignant tumors any but insignificant and palliative operations. From the characteristics of cancer he admits that it is a parasitic disease resembling tuberculosis in its clinical evolution; it is necessary, therefore, to attack it with the same energy and promptness as the latter affection. Too often we operate too late, when it is impossible to prevent a relapse. This fact filled the earlier statistics and continues to darken the present ones. As soon as the diagnosis is assured we should intervene by the bloody method, always making a systematic and carefully detailed toilet of the ganglionic chain, even if it is healthy in appearance. That the principal cause of relapse is the late period at which we operate is proven by his personal observations upon three groups of

cancer cases: those of the breast, the uterus, and the gastro-intestinal tube. The operable cases of cancer of the stomach reached 12 per cent.; those inoperable, 88 per cent., a part of which were susceptible of palliative operation. The mortality from pylorectomy for cancer was from one-fifth to one-seventh; that from gastro-enterostomy, one-seventh. For cancer of the uterus there was 68 per cent. of the cases inoperable and 32 per cent. operable, only one-fourth of which were operable by the sacral method. The mortality from vaginal hysterectomy was 8 per cent. and from sacral hysterectomy 11 per cent. As regards cancer of the breast, for which intervention is most easy, he counts twelve absolutely inoperable cases, while in more than 50 per cent. of the cases it was possible to predict an early and fatal relapse. The mortality reached 5 per cent.—that is to say, it was equivalent to the general mortality of all the operations. There is no doubt that early operations will prevent relapses, since in the deplorable conditions under which we now operate we actually have some cures. He cited at hazard cases of gastro-intestinal cancer without apparent relapse for three years; cancers of the rectum without relapse after four years; a cancer of the uterus, which had invaded the vesical walls; a villous cancer of the kidney of extraordinarily difficult extirpation and without relapse for five years. He had removed the tongue in a case that had relapsed nine years after an operation by Dr. Kocher. Among his cases was one of survival for eleven years from cancerous goitre, and a cancer of the testicle that had not relapsed at the end of twelve years. Histological examination had left no doubt as to the nature of these tumors.—*Semaine Med.*

Indications for Operation in Head Injuries.

Bullard asserts that the primary condition for immediate operation in severe head injuries is increased intracranial pressure. The question of operation in such cases depends on the degree of pressure. When the patient is in a condition of deep stupor and cannot be roused by supraorbital pressure, an operation is imperative. When, however, unconsciousness is deep but the patient can still be roused, the indication is less definite. Much will depend on the presence or absence of a tendency to an increase of unconsciousness. In any doubtful case the most careful watch should be kept for any increase in the degree of unconsciousness, and as soon as this has been clearly determined, an operation should be performed. The surgeon should act also in all cases in which, whether the patient be only lightly or deeply unconscious, there has been a rapid increase in the degree of unconsciousness, or a distinct increase of paralysis of the extremities within the course of a few minutes or hours after the injury. Delirium without unconsciousness, the author holds, contraindicates operation or indicates that the surgeon should not operate at once. Localized cerebral irritation as evidenced by clonic convulsions, either general or local, is not, it is believed, a common sign of head injury. In cases in which there is no history, convulsions render it probable that the case is non-traumatic, or that some ordinarily non-traumatic condition has been set up by the injury. In cases in which there is no evidence of paralysis, and no pupillary symptoms are presented, the surgeon must consider the general condition of the patient. As a rule, the author would advise operation in any case in which the patient (an adult) could not be roused by supraorbital pressure and the pupils do not react to light. In all conditions of lasting unconsciousness, stupor and coma, there is, the author asserts, an increase of intracranial pressure. Such pressure is not always due to hæmorrhage, but in many instances is the result of swelling of the brain analogous to the so-called acute cerebral œdema In such instances the author would recommend a large opening—at least 2 inches by 1—in the skull, and incision of the dura mater. There is no more danger, he holds, in opening this membrane under proper antiseptic precautions than in opening any other serous cavity. The operation should be performed as rapidly as possible. In children many deaths are caused in operations of this kind by loss of time. In adults the consequences are not, as a rule, so serious; still, next to asepsis, time is probably the most important factor in the success of an exploratory cranial operation.—*Boston Med. and Sur. Jour.*

Excision of the Vas Deferens for Prostatic Hypertrophy.

Pavone (*Il Policlinico*) has made a series o experiments on dogs with regard to the effects of removing the testes or the vas deferens alone. He finds that bilateral excision of the vas deferens in dogs brings about the same atrophy of the prostate as castration. Drawings of the microscopic appearance of prostates after castration and excision of the vas deferens respectively show that practically the same changes occur after both operations. The author therefore recommends excision of the vas deferens for prostatic hypertrophy in preference to castration as being a simpler operation, causing less mutilation and less mental shock to the patient, and giving equally good therapeutic results.

A New Method of Treating the Congenital Dislocation of the Hip.

Mr. Arbuthnot Lane recently presented at the Clinical Society of London, two patients upon whom he had operated by a new method. This consisted in removing the head of the femur from its movable position on the dorsum ilii to a secure position below the anterior inferior spine of the illum, to which it was sewn, with the result that the lordosis was lessened, and the walking powers of the patient were increased to very little below the normal. The advantage will not be equally great when there is a double dislocation. The operation is not intended to supplant that of replacing the head of the bone.

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ORIGINAL ARTICLES.

CANCER OF THE BREAST: REMARKS ON PATHOLOGY AND TREATMENT.*

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The general subject of carcinoma is too large a one for me to attempt to cover in an article such as this. I believe I am correct in saying that our knowledge of this affection is more chaotic than of any other medical subject of equal importance. Because of this fact, it is perfectly permissible for each physician to hold and advocate doctrines which are at variance with those expressed by various authors.

Supposed causes of this affection are many, but the etiology is involved in such profound doubt that a consideration of them would be a fruitless task. Heredity, grief, trauma, bacteria, protozoa and other supposed causes have not received cordial recognition and cannot, in the present state of our knowledge, be regarded as potential factors in the etiology of the affection.

Since the etiology is so obscure, I have deemed it best to confine my remarks to some deductions drawn from clinical and pathological experience.

Cellular elements and a stroma or fibrous network constitute the histological elements of cancer. The blood and lymphatic system, while necessary, do not form an integral part of the growth.

The cellular elements vary in size, number and arrangement. No particular cell is characteristic of cancer. The cancer cell is a myth and has been relegated to oblivion. The stroma is a very unstable quantity; in some cases being small in amount, in others constituting the bulk of the tumor.

It seems to me that the relative proportions of cells and stroma is a practical point of much importance to us, both clinically and pathologically; for from this variation we are enabled to formulate the following propositions:—1, The malignancy of a new growth is in inverse ratio to the amount of stroma present. 2, The malignancy of a new growth is in direct ratio to the amount of its cellular elements.

From these two facts, and they are facts, it seems to me that some deductions of an intensely practical nature can be drawn. Preponderance of cells means malignancy well marked; excess of stroma means malignancy reduced.

Modern thought seems to have accepted primarily the local origin of malignant growths; hence, we need spend no time in discussing their local or general origin.

At this point I desire to depart from the generally accepted belief and say that

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I shall attempt to prove from clinical and pathological data, that the only essential feature of a malignant growth is the cell elements; malignant growths are essentially cellular structures.

This view receives confirmation from facts which have been noted by various observers. After removal of a breast, clumps or nests of cells have been found beyond the apparent confines of the tumor; no stroma or network is present, yet we know from sad experience that these cells have the power to produce a typical malignant tumor. Under such circumstances we must certainly confess that the quintessence of the disease existed in these cells, and, in fact, so far as our observations can go, the cells were all that was essential to produce the tumor.

Because of facts similar to the above, and because of the greater malignancy of those tumors which are rich in cellular elements, it seems a perfectly justifiable conclusion to regard the stroma as of secondary importance and a secondary formation; it cannot, therefore, be regarded as an essential part of the growth. The stroma is probably produced by a condensation of the tissues, made necessary by the great increase of cellular elements in the part. The definition of carcinoma as ordinarily given is therefore incorrect, in that it describes the fibrous network as part and parcel of the cancer.

From the above condensed statement of facts we may go farther and claim that the fibrous tissue is conservative, being an attempt on the part of nature to limit and circumscribe the growth; it serves as a barrier against further infection. The fact that the more fibrous tissue there is in carcinoma, the less malignant it is; the fact that fibroid phthisis is the least malignant form of that disease, and the fact that in the few cases in which spontaneous cure of carcinoma has been observed (Billroth), it has been brought about by an over-production of fibrous tissue, leads me to regard the stroma as our ally and not as our enemy.

Warren in his "Surgical Pathology and Therapeutics," says: "These cells grow into the surrounding connective tissue, which is thereby stimulated to increased development." This expresses about the same idea I have tried to elucidate above.

It will be observed from what has been said that this function of fibrous tissue is general and not a specific function applicable alone to the subject of carcinoma. The conservative nature of this element is just as plainly indicated in tuberculosis, syphilis and other pathological conditions which are essentially cellular in their nature.

From these facts, if they be facts—and I am much impressed with their truth, we can, I think, draw some highly important deductions as to treatment. In the first place they show us that the knife should be used only in those cases which permit of an excision sufficiently extensive to remove all vestige of the disease. For should we fail to accomplish this, we simply break down nature's barriers and invite a recurrence of the disease which will be more virulent. As a matter of fact, this is just what does occur, for you may find in any textbook upon surgery the statement that recurrences after removal are prone to be malignant, more rapid in their growth, more cellular in nature and more rapidly fatal than was the original growth. The history of operations for removal of cancer of the breast presents an increasing tendency to go further and further around the malignant growths. A few years ago, excision of the carcinomatous mass from the breast was considered to be all that was necessary in this class of cases. We next find it recommended that in all cases of malignant tumor in this locality the entire breast be removed. The next step was that in all cases it was necessary to clean out the contents of the axilla, even though no evidence of disease in that locality was obtainable by the sense of touch. Dr. Halstead, of John Hopkins Hospital, recommends the removal of the breast, the infra-clavicular and axillary contents and the pectoralis major muscle, in all cases where there is a malignant tumor in any part of the breast. He recommends that these structures shall all be removed in one piece, and gives as the reason therefore that it is not advisable to cut through cancerous tissue lest your wound become infected from the material left. Dr. Willy Meyer goes one step further and recommends that in all cases the pectoralis minor muscle be taken out in addition to the structures recommended above by Dr. Halstead.

This simple enumeration of the changes

in technique of the operation shows conclusively that the statistics up to the publication of Halstead's paper, have not been satisfactory and that the apparent hope must come from wider incisions and the removal of greater quantities of tissue in malignant tumors which are far advanced and in which there is great involvement of tissue. It seems to me that in view of the facts adduced above, the late operation hastens the death of the patient by increasing the malignancy of the disease. In view of the terrible disease from which these patients suffer this may be a humane act, but it is in direct conflict with the ordinary tenets of our profession. The ordinary reasons given in textbooks for operation in this class of cases are, that the patient's life is prolonged and that she is relieved of suffering, also of the mental torture of having to carry around with her a foul, malodorous ulcer. Perhaps these reasons are valid, and perhaps they are not all of them strictly true. I doubt very much whether the life of the patient is ever prolonged by the operation in these advanced cases of carcinoma. It is a question to my mind as to whether the greater malignancy of a recurrence does not materially shorten the life of the individual. This, of course, is a point very difficult to determine. I have operated in a considerable number of such cases within a comparatively short time, and with one exception all of such cases have died within fourteen months after the operation. The one exceptional case was a woman in whom the anterior and lateral thoracic walls were infiltrated with a large number of small nodules about the size of buck shot. Although this woman is still living, there have been four local recurrences since the operation, which was made in March, 1894, and at the present time she has a fifth recurrence in the supra-clavicular region. Since my personal experience has been so unsatisfactory in this class of cases, I hesitate about advising operation in cases so far advanced.

In conclusion I desire to call attention to a clinicial fact which has apparently escaped observation, and that is, the possible utility of the fibrous constitutents of the malignant growth. If the previous statements about the nature of this tissue are correct, it seems to me that some highly interesting and important deductions can be drawn. My idea of this therapeutic application would be about as follows: You will all call to mind at once that tissue of this sort possesses the property of contracting, (and the retraction of the nipple in scirrhus is a well known illustration), and that this contraction causes ischæmia; ischæmia means altered or diminished nutrition of the parts: were this carried far enough, degeneration and innocuousness would be the result. The conclusion, therefore, to this study is that the hope for cure of these malignant growths may be looked for in the fibrous tissue. Were we able to produce this fibrous tissue or to cause an overgrowth of it, we certainly could logically expect the destruction of the malignant growth.

We find in pathological anatomy elsewhere, an example which will about meet my ideas on this subject. As is well known, in cirrhosis of the liver we have the production of new connective tissue between and around the lobules of the liver. The subsequent contraction of this newly formed connective tissue results in altered nutrition and destruction of function of the cellular elements. Now, if this process were applied to pathological formations such as carcinoma, we have practically the same conditions to deal with. We have epithelial masses more or less completely surrounded by a fibrous network, and were it possible to produce an irritation sufficient to cause an increased growth of this fibrous tissue, we could then utilize its property of contraction for the purpose of destroying pathological cellular tissue; or, in other words, we might utilize Nature's method in a pathological condition for the purpose of overcoming the growth of these tumors.

Now, I think we will all admit that internal medicine will not produce the result aimed at. On the contrary, it seems possible that the result may be produced by the introduction into the substance of the tumor of an irritant sufficient to bring about the desired end. Methyl-blue used in this manner has been recommended, but the results have not been brilliant. Alcohol injected into carcinoma of the uterus has, according to Schultz, of Budapesth, caused the arrest and disappearance of ten of these tumors, and epithelium developed over the eroded surfaces. Robinson, concludes that by judicious cauterization with chloride of zinc and potassa a great many

of what would be deemed incurable cases, can be brought to a permanent healing. From these latter facts you will observe that the modern tendency is to the employment of agents which have the effect of increasing and actually causing the formation of new connective tissue in and through the growth. This, I am convinced, is along the right track, and I hope that its perfection will lead to the radical cure of a class of cases which has long been the opprobrium of the medical profession.

A curious co-incidence is found in the fact that alcohol is generally regarded as the causative factor in cirrhosis of the liver, and Schultz found that alcohol injected into carcinomata of the uterus caused the arrest and disappearance of these growths.

THE RECOGNITION OF INCIPIENT INSANITY.*

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To the practitioner in general medicine no feature of the study of mind disorder is more attractive or more intensely practical than that which pertains to its early recognition. The law of its development, the phenomena of its evolvement, and the pursuit into the fastnesses of its hidden origin are subjects of entrancing interest to him. It is right that this is so. It is as it should be. The physician in general practice may not consider that a comprehensive study of the subject of insanity as a whole is within his province. He may reasonably consider the field too extensive for his time and too intricate for his means of investigation, but he above all others of his brethren of the healing art, is the conservator of the public health; he it is who must know the dangers lurking in the shadows and point out the sources and the manner of development of disease and disorder. In an especial manner he is the custodian of the public health, the conservator of the public weal "*in menti, in corpore.*"

The problem thus important is not always as easy of solution as would at first thought appear. To the unthinking the symptoms of insanity are always self-evident. In fact, even judicial authority will sometimes maintain that untrained and lay evidence is as valuable as any other in determining these phenomena; and following in the wake of such opinions much unjust criticism is engendered. The truth is that there is no field of medical investigation in which more accurate scientific investigation is required than in the region of the development of mental disorders. It is important that the manner of this development should be carefully studied and the characteristics of the first evidences should be most minutely examined. The importance arises from the gradual evolution of the phenomena and from the very unfavorable conditions that result when these conditions become fully established. Prophylaxis becomes more important than cure, and he who counteracts recognized tendencies and incipient disorder, is more essentially a savior than he who redeems from the fully developed disease.

The complexity of mind phenomena greatly enlarges the scope of this investigation. It is more comprehensive than the examination into the disordered function of any other organ because mind activities are so much more extensive in the field of their operations. After all, however, the same laws are seen to be operating here as elsewhere. The solution of the problem of the origin of mind disorder becomes simply one of the study of the relations of supply and demand in the economy of the organism. In the evolution of mind activity energy is expended that is represented in the waste of physical elements. To produce regular, well-balanced and methodical action, the brain must be supplied with a requisite amount of proper nutrient pabulum in proper re-

*Read before the Ohio State Medical Association, 1895.

lation to the energy expended. Disordered action here almost uniformly indicates a disturbance in the healthy balance between this supply and the demand upon it. Speaking broadly, the study of incipient mind disorder becomes a study of brain nutrition.

Three elements determine the extent and character of these disturbances in any given case. There is first the type of structure of the cell elements of the particular brain. This varies greatly in different cases. The variation is largely, in fact we may safely assume almost entirely, in the varying capacity of the cells to assimilate and appropriate nutrient material. The extent of their fibrillary ramifications and the consequent extent of their functional capacity must be determined by this. Their function as trophic centers is one of their most important functions, and upon the varying extent to which they are capable of performing this function depends their varying degree of stability and of regulated energizing. The nervous type is that which readily shows exhaustion, has comparatively limited power to recuperate and whose energy is fitful and irregular in its exhibition. The type of largest power and firmest stability is that which can longest endure continuous functional activity without signs of exhaustion, and shows the greatest ranges of energy with the least evidence of fatigue. In simple terms it is a question of nutrition.

The second element is the actual as well as the relative amount of energy demanded of the cells. The kind of demand that is most frequently injurious is the overstrain of worry. Simple intellectual or physical exercise of normal character, is not often so excessive as to be injurious. I know that this is against popular opinion, but it is in accord with my experience and I believe with that of most observers. There are exceptional cases in which simple overwork, kept up through too many hours, at the expense of sleep and rest and without sufficient recreation and variation, has resulted in serious organic disease without the addition of any form of dissipation or other excess. I have a case now in my care that is a marked illustration of this exceptional condition.

F. S., aged 32, well educated, bright, industrious and painstaking, was appointed superintendent of a blast furnace at 24 years of age. He gave very close attention to detail, and besides interested himself in other matters; became president of a glass manufactory; president of the Board of Education of the city in which he resided; one of a board of three to prepare plans and build water works; an officer in a Masonic Lodge and took an active part in all these enterprises. He was given to details, not trusting these to others, but putting in many hours a day, not taking any recreation or varying his activity by any amusement. He was of exemplary habits in every respect. Almost a year ago he began to show signs of mental impairment in the form of entries made daily in his diary which he had kept for many years. These became more a record of comparatively insignificant events in his daily life rather than of his business transactions as they had been before. His memory began to show signs of failure, his speech became slower and there was a depreciation in motor coördination. His gait was awkward and somewhat irregular. He was taken to Philadelphia, and was under Weir Mitchell for almost three months. The motor symptoms seemed to improve but the mind disorders increased. The dementia became marked and delusions of an indefinite character came on. He was eating and sleeping well, but the brain cells gradually deteriorated in functional capacity. Since he has been with us his course has continued steadily downward. There is now very little functional capacity left in the cells. He can scarcely respond to simple questions. The reaction time is very much retarded, yet his general nutrition is good. He eats and sleeps well and does not lose flesh. There seems to be a simple degenerative change in the cell elements from overstrain; too prolonged stimulation resulting in the loss of power to further assimilate nourishment.

Excessive fatigue, with its accompanying hyperæmia and vascular disorder, does induce such degenerative changes, as has been well demonstrated by experimentation, but it is not often in practice that we see uncomplicated cases of this character. There is usually the added effect of drain by some excess, as the over stimulation of alcohol or some drug.

From worry, which is much more frequent, there is the same excessive hyperæmia and waste that is found in simple overstrain, and the result is

the same. It is more rapid in its action, however, and more damaging in its effects. The result is rapidly induced fatigue, disordered function and a depreciation in the power of cell elements to recuperate. The physical effect is the rapid waste in the protoplasm of the brain cells, and especially a lowering in its vitality, rendering it less liable to renew its substance and less capable in energizing.

The third element to be considered is the variation in the quality and quantity of the nutrient pabulum supplied to the cells. A simple anæmia will of itself cause, in certain cases, symptoms of decided mental disorder.

Miss A. W., was referred to me for examination. She was anæmic in a marked degree. She was almost bloodless in appearance. She had suffered from menorrhagia for several years, and for the past few months the flow had been almost constant. Examination revealed an intramural fibroid about the size of an orange. A few months before, she had begun to show signs of mental disorder was extremely suspicious of her mother, brother and sister, with whom she had lived happily and to whom she was much attached; accused them of doing things to annoy her; heard voices at night and believed persons came into her room at night to attempt her injury. She finally became much excited over the fancied injustice of her mother, screamed out at the breakfast table and could be quieted only with difficulty. At times she was able to recognize that her ideas were delusions, and was sorry she had acted so. At other times they would return in all their intensity and she would not resist them. We advised removal of the tumor and the stoppage of the excessive flow of blood. This was done and at the same time the appendages, being found the seat of cystic degeneration, were removed. It was found necessary to remove the entire uterus. She recovered from the operation nicely, has steadily gained in strength, her color has much improved and she has not a single symptom of mental disorder since the operation. There was no hereditary influence, no worry nor other sufficient cause for the mental symptoms, and we felt justified in attributing them to the simple anæmia. The result demonstrated that we were correct.

But simple anæmia uncomplicated is not often the cause of the mind disease. It is usually complicated with the circulation of a poison in the nutrient fluid, such as alcohol, opium, the syphilitic ptomaines, the germs or their ptomaines of other specific or febrile diseases, the retention of poisonous waste products, or changes in the vascular arrangement that interferes with the proper supply of the nutrient fluid in the proper quantity. This may be through changes in the vessel walls, variations from the normal in blood pressure, or obstructions to the distribution of the blood and consequent impoverishment of the cell elements. In every case the first sign of this disturbance, this poverty, is the exhibition of painful and difficult action of the cells. If closely examined, every case of mental disease will be found to have a prodromal period of longer or shorter duration, of greater or less intensity in its symptoms, that is characterized by depression and difficulty in the exhibition of mental action. Mind activity becomes more distinctly an effort and there is a morbid depression that cannot be overcome. Sudden shock will produce such condition in a few moments, while in most cases the period extends over weeks and months. Without warning in the first case, we cannot avoid the result; in the second case we can do much to ward off what is otherwise inevitable and we should be prepared to interpret aright the signs we see. Whenever worry or routine work is causing fatigue and depression, whenever mental action becomes irksome and requires unusual effort, at once advise a change. Introduce recreation, change of scene, rest, more sleep, different exercise or more nutritious dietary. Above everything else remove, if possible, the cause of worry or try to modify its injurious effect. The incipient stage of mind disorder is the painful discharge of mental functions and increased sense of effort in intellectual operations. A typical case is that of the house-wife, over worked, worried by the care of children and often by the misconduct or neglect of husband, or by financial straits and misfortune to loved ones, a constant "gnawing at her vitals" in a much more than poetical sense, growing anæmic, a sense of burden and a depression with her constantly, until, sooner or later, with her type of cell structure the nutrition be-

comes permanently impaired and an outburst of melancholia or mania ensues.

Sometimes the changes are very gradual and so subordinated to the volition of the patient that they exist for months without detection, and friends are startled by some overt act of mental unsoundness coming apparently out of a condition of usual health. The suddenness here is nearly always apparent rather than actual. Close examination will disclose some form of excessive demand on the brain cells, or some unusual interference with their supply of nutritive material, running through preceding weeks and months.

Excess and dissipation cause many cases, by adding elements of interference with cell nutrition. Nervous exhaustion, tremor, excessive morning fatigue, emotional tendencies, instability in intellectual action are among the prominent incipient symptoms of these forms. It is scarcely necessary to point out the fact that all of the early signs of mind disorder from dissipation and excess are those of nutritive impairment. Your daily experience will demonstrate it, but it is well to keep this feature more prominently in view. In advice as to treatment it is most important. Removal from temptation or the opportunity of indulgence, rest to the cells, plenty of sleep, nutritious dietary, regulated physical exercise proportionate to the capacity of the individual, the prompt removal of waste products; all these are indications to restore the normal nutrition of the cell elements, and to remove the tendencies toward more permanent and pronounced disorder. It is not so important to be able to decide technically whether this symptom is evidence of a psychosis and that of a neurosis; whether this sign is that of insanity or only nervousness; not nearly so important as to know what things are evidences of incipient nutritive disturbance, to know what things are "indications" and what they indicate. The prodromata usually exist through a longer period than the friends believe. Beyond every other disease, insanity is of slow growth. The brain will withstand many abuses and much irregularity before giving way, and it is only frequent repetition of excessive indulgence, the constant erosion of the ever-recurring friction of care and worry that finally result in structural depreciation and disordered function.

In no other disease is it so difficult to correct the diseased tendencies. These frequently depend upon environments that a medical man cannot change. Advice often cannot be followed because of financial or domestic obligations and restraints, and oftener advice will not be followed because believed unnecessary. What is done must often be done against the wishes of the patient, and the utmost tact will be required to secure the adoption of the desirable changes.

Of all the prodromal symptoms of mind disorders, insomnia is the most constant and the most troublesome. It is the expression of morbid and extreme fatigue of the brain cells, their cry for nutriment and rest. It usually exists for weeks or months before the patient comes under observation. Its proper remedy is often extremely difficult to find. It is easy to give a narcotic, and the apparent rest to brain that it gives is fascinating but not safe. You will often be compelled to administer narcotics as the lesser of two evils, but remember you are never thereby producing a natural sleep or a normal rest to the brain. It is a stupefaction produced usually by the direct effect of the drug on the protoplasm of the cell, and simply places function in abeyance rather than gives opportunity for recuperation. Before resorting to them, therefore, exhaust every other natural means of inducing brain rest. Try the effect of heat or cold, of baths, of exercise, of stimulants and nutriment, of counter-irritation; the regulation of the excretions by the bowels, the kidneys and the skin; the use of such drugs as tend to promote nutritive repair and the reduction of waste. Reserve pure narcotics to the last and use them only when nothing else will reduce waste from over action, bearing in mind all the time they are in use, that so far from promoting nutrition they usually have the opposite tendency, while the indications are to increase the assimilation of nutriment by the brain cells, control and regulate their functional activity and remove the products of their waste.

Disordered function may find expression in emotional depression or exaltation, in morbid fear and undue timidity, or in over confidence, rapid ideation and quickened muscular action. It may slowly and insidiously develop as systematized de-

lusions of suspicion and persecution, or find expression in frequent and irregular emotional storms. The roots of the disorder may be in defective development, or may arise from the direct effect of overstrain and excessive fatigue. Yet in every instance the difficulty is the result of nutritive impairment, and the problem is how best to restore the proper balance between waste and repair, between supply and demand, the proper regulation of the burden to the strength of the bearer thereof.

COMMUNICATIONS.

FRACTURES OF THE SKULL.*

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I desire to call the attention of the Academy of Surgery to some points in regard to fractures of the skull which I believe do not receive in this country, or anywhere except in Germany and Russia, the attention which they deserve. I mean the mechanism of indirect fractures. This has much more than a purely scientific interest; it may be an important factor in our application of the art of surgery as well. It is now eight years since I read before the College of Physicians (*Trans. Coll. of Phys. of Philadelphia*, 1886) a paper, to the preparation of which I had devoted a great deal of time and labor, and in which was expounded the theory known as the "bursting" theory of indirect fractures. This paper has—so far as I know—never been noticed in any way on this side of the Atlantic. I refer to it because I would like to make it the authority for certain statements which I make here and which are there supported by argument and demonstrations.

The "bursting" theory of indirect fractures of the skull may be invoked to clear up many difficulties of diagnosis in fractures of the skull, and I believe that it should invariably be invoked before conclusions of a medico-legal character are reached.

I have seen more than one case, under the care of the Coroner of Philadelphia, in which I found a fracture precisely where I thought it should be, even after the coroner's physician had examined the skull and concluded that there was no fracture at all. I have also seen cases in the living in which the application of the "bursting" theory has furnished very instructive suggestions in regard to the diagnosis of accidents to the skull, making them much clearer and the treatment much more satisfactory. An appreciation of the bursting theory also often clears up the perplexities of cases in which, without detectable fracture of the skull, there is found a rupture of blood-vessels and hemorrhage within the cavity of the skull, either extra-or intra-dural.

Briefly stated, the bursting theory may be outlined as follows: The skull is a hollow case, of a somewhat ellipsoid form, the wall of which is formed of bone, varying in thickness and density in different parts, and of a peculiar conformation, and with peculiar contents and coverings. When such a case is struck, or when it strikes upon a resisting body, it is compressed in a direction in the line of the force and counter-pressure (which latter may wholly depend on *vis inertiæ*). The result of this compression is to shorten the prime diameter, and of necessity to lengthen the transverse diameters. As illustrating this first phase of action, Sir Charles Bell, in the early part of this century, made an experiment (which is easy to repeat) in which he placed movable balls inside and outside of a hoop and touching it, and found that a blow upon any part of the hoop caused the ball immediately under it and that immediately opposite it to move toward the centre of

the hoop, while those distant ninety degrees from it moved away from the hoop. If this experiment were to be modified so as to meet the conditions of a hollow sphere instead of a circle, we might place half a hollow sphere upon a resisting surface, and striking it on the upper pole would find that this pole would approach the resisting surface and the circumferences would be elongated and describe a larger circle. In such an experiment, made upon an elastic substance, the compression and elongation would be followed by a corresponding expansion and shortening. The first compression and elongation spoken of are of the chief importance in indirect fractures of the skull, and in them we have (to use a simple illustration) conditions similar to those when an umbrella is raised. In the latter case it is plainly seen what takes place, namely, that, as the pole is brought nearer to the equator, this is elongated and the space between the meridans (the ribs of the umbrella) is increased. This increase being expected and provided for by material which lies in folds between the meridians, this is simply spread out. In a body with no such provision, however, any force that would bring its poles near together, and consequently lengthen its equatorial circumference and separate its meridians, would at once set up a struggle between the force applied and the cohesion of the particles lying along and between the meridans. If the power of cohesion were sufficient, there would be no disruption; if, however, it were not, then there would be a split beginning at some point near the equator, where the strain is most severe, and passing in opposite directions toward the poles. This is what would take place in a perfectly symmetrical homogeneous elastic body. What naturally takes place in the skull is shown by observation and experiment to be thus modified by the peculiar structure, formation, contents, and surroundings of the skull.

This is what is known as the "bursting theory," and its bearing upon practice will be appreciated, I think, by those who apply it. It provides the surgeon—not with certainty of diagnosis, but with suggestions of probability, which will increase his chances of making a reliable diagnosis. The inferences from it, which are of a practical nature, are as follows: Force applied to the skull, of sufficient violence and rapidity of action, will produce what is known as a direct fracture—a fracture at a point where the violence was applied. In these cases the rapidity of action is a very important element, as it is a well-known fact in physics that time enables cohesion to resist a disruptive violence, which, if instantaneously applied, would at once overcome the co-hesion. Force less sudden and less extreme applied to the skull will bring actively into play the elastic properties of the skull, and if violent enough will lead to a fissure at some distance from the point at which the violence was applied, and usually in a line meridonial to the point where the force was applied. My study of a large number of accidental and experimental fissures indicates that blows upon the forehead directly in the middle line are likely to produce a fissure of the skull, passing from front to back in or near the middle line, and more frequently at the base of the skull than in the vault. Blows applied to the forehead on one side or the other are likely to produce fissures in a line with the direction of the force, and crossing the skull to the other side. Such fissures occur almost always in the base, and they usually terminate in the middle cerebral fossa, though they sometimes cross the foraman magnum and traverse the cerebellar and posterior cerebral fossæ. Force applied to the middle of the occiput usually produces a fissure, passing in the direction of the force around the occiput, laterally or perpendicularly, sometimes separating the lamboid suture, sometimes splitting the lower part of the occipitial bone and going into the foramen magnum, and sometimes crossing the petrous bone, breaking it tranversely and passing into the foramen lacerum medius. Such fissures may pass straight down to the foramen magnum and (crossing over) split the body of the sphenoid bone and extend into the ethmoid or frontal bone. (Such fissures furnish typical illustrations of the correctness of the bursting theory.) Force applied to the side of the head, in almost all cases, produces a fissure passing through the base of the skull in the middle cerebral fossa. Such a fissure sometimes traverses this fossa completely and may pass completely through the base and vault, dividing the skull into two halves.

In some cases the fissure passes directly through the coronal suture; in many cases it splits the petrous bone longitudinally. In some cases force applied to the side of the head causes a splitting off of the posterior clinoid processes—an occurrence that is explicable only upon the supposition that the tentorium cerebelli, which is attached here and to the occipital bone, is put upon the stretch when the skull is elongated antero-posterially and drags these portions from the body of the sphenoid. Force applied to the side of the head frequently produces fissures passing around the side of the head, through the parietal and squamous bones, and often passing to the basi-sphenoid, but rarely dividing it completely. In some cases force applied directly to the vertex produces a fissure in the long axis of the skull. Such a fissure may be of a very great extent and may even divide a skull into two symmetrical halves. Longitudinal (antero-posterior) fissures occur more frequently in the base of the skull than in the vault.

An interesting form of violence, applied to the skull, is that due to falls upon the feet, where the momentum of the body is suddenly arrested by the resistance of the earth. In such a case a ring of bone surrounding the condyles may be driven into the skull, or—as observation and experiment show—the process of the sphenoid bearing the posterior clinoid processes may be broken off by the pull of the tentorium cerebelli, when momentum and resistance lessen the diameter from condyles to vertex and lengthen the diameter from occiput to sinciput.

I state my views in reference to this matter somewhat authoritatively, because I have studied it pretty thoroughly for ten years, and because these views agree, I think, with those of the most careful students of the subject in recent years. They have also been confirmed by a considerable number of personal observations. They have an important bearing upon surgical practice and also upon medico-legal questions. For example, in 1886 I saw a coroner's case of a person who had fallen down some stairs, striking the head near the external occipital protuberance, in which, after the skull had been opened and the brain removed, no fracture was found by the coroner's physician, and none would have been found had he not been asked to remove the dura and to look along a line suggested by an application of the bursting theory, where a fissure was found passing down through the occipital bone and into the jugular foramen.

My investigations show in over 90 per cent. of all cases fissures that correspond to what might be expected from an application of the principles of the "bursting theory." This result seems to establish the theory by the best test that we can apply to it; so that it appears to rest upon a very firm tripod of reasoning, experiment, and clinical observation.

I do not overlook the fact that there are fractures that cannot be accounted for by it. There are some fractures in which the force applied is so great and acts in such a manner that the skull is crushed so as to hide any evidence of the play of its elastic properties, the fracture being of a comminuted sort; and there are others in which one segment of the skull seems to be shoved over the other by forces of pressure and counter-pressure which require some study before their mode of operation can be understood. For this reason it is of importance to learn in every case the position which the skull has held in relation to the spinal column or to any body capable of exerting counter-pressure. No less is it important not to overlook the counter-pressure that is caused by the simple *vis inertiæ* of the skull and its contents.

But it would be impossible to speak of all the influences that may modify the strict application of any one theory in regard to fractures of the skull; and I must close with the expression of my own conviction that the supreme law governing the production of indirect fractures is that which depends upon the fact that the skull is practically a hollow elastic case approximately oval in shape, and which may be briefly formulated as follows: When a sufficient force is applied to any curvilinear parts of the skull, if the parts do not give way immediately, the axis of the skull lying in the same line as that of the applied force is shortened, and all the axes lying in planes at right angles to this line are correspondingly lengthened, with a proportional lengthening of their circumferences and separation of their meridians, so that the direct depressing force is converted into an indirect disruptive force acting at right angles to the

direction of the former. The effect is to produce a fissure or fissures, which will have a general meridonal direction.

The application of this law is subject to certain modifications due to the anatomical and architectonic peculiarities of the skull, its coverings and contents, and to certain exceptions due to the amount and velocity of the force applied, as well as to the coming into play of peculiar counter-forces.

DANGERS OF THE UTERINE TAMPON*

WILLIS E. FORD, M.D., UTICA, N. Y.

The advent of a new method of treatment which promises to speedily accomplish results that have heretofore been obtained slowly, if at all, naturally is accepted with enthusiasm. If we add to this the statement that the new method is devoid of danger, the chances are that it will be tried by a great number of physicians, and that the cases will not always be carefully selected. It is some time since the vigorous curetting and packing with gauze of a diseased uterus has been pretty generally practiced, and enough cases are before us to make a general survey of this method of treatment profitable. That it is a quick and brilliant mode of reaching results in certain cases, is on all hands agreed; but that it is beneficent in all cases, as it is now being applied, is very doubtful. It is so easy, however, to adversely criticise almost any legitimate surgical procedure, that at the outset I desire to disclaim any intention of detracting from its real merits, and only aim to point out some dangers that my experience has thrust upon me.

The dull curette has for years been successfully used where there were villosities or polypoid masses or retained fragments of placenta to be removed, and if the operators had gone a little further, and had insisted on the dilatation of narrowed cervices and subsequent attention to the proper drainage of the uterus, there would not have been the necessity for so radical a change in methods as has lately been seen.

The sharp curette, or spoon, has for a long time been necessary for the removal of sloughing cancerous masses, or for fibroid nodules, but not until quite recently has it been advocated for endometritis. Topical applications, which have in the main, and justly, been discarded, never accomplished what in favorable cases the curette and the tampon is seen every day to accomplish. The danger of adopting any really valuable treatment as a cure-all is, however, apparent, and the danger in certain cases of the curette and uterine tampon ought not to be overlooked. Endometritis is such a stubborn disorder that vigorous measures, amounting to a surgical operation, are justifiable; but there are certain conditions that preclude mechanical violence, even in the name of surgery. Such are the cases of fixed malpositions, due to adhesions from inflammatory exudates about the adnexa; and such, also, it seems to me, are all those cases of catarrhal salpingitis accompanying endometritis. Those who first advocated the sharp curette after thorough dilatation of the entire cervical canal, and of the body of the uterus when necessary, did not advocate the tampon of gauze: and several men who are entitled to speak authoritatively on such matters, notably, W. Gill Wylie, in this state, preferred others means to secure drainage—either a hard rubber instrument or open wire stem, or they left the dilated uterus to drain itself. Some critics, notably the Prices, of Philadelphia, did not approve the violent dilatation necessary, nor the device for drainage. The assertion was made that the theory was wrong, and that the injury to the uterine mucosa was found to set up salpingitis in a considerable number of cases, and that the last end of these patients was worse than the first.

*Read before Central New York Medical Association.

It now seems to me that these differences of opinion were due to the fact that cases of perimetritis were accepted without previous treatment to release adhesions, and chiefly, perhaps, to the manner in which the gauze tampon was made.

On the whole, however, the results have been so good that now not only gynecologists, but general practitioners, at least in Central New York, are practising rapid dilatation, curettement more or less vigorous, and tamponing with gauze more or less firmly, in a large number of cases. I am aware, however, that some deaths have followed this procedure, and that many cases of salpingitis are found whose history would seem to point to the operation as a cause. Last year I repaired a perineum for a woman living in a distant part of the state, and knew from her history and from careful examination that she had no tubal disease. Some six months afterward, her physician wrote me that she had just consulted him for great pain following a tamponment of the uterus for some catarrhal trouble, and he found in the left broad ligament a tumor larger than a hen's egg, very sensitive but entirely movable. While manipulating it, the sac ruptured. He was much alarmed and put the woman in bed, and after a short and not serious illness, she recovered sufficiently to be sent again to St. Lukes Hospital. I found a thickened tube and the uterus retracted and moderately fixed to the left.

Another case, not so fortunate in its outcome, followed dilatation and tight tamponing of the uterus for dysmenorrhea. She was about twenty years old and unmarried. Her physician, an excellent general practitioner, said he was careful as to sepsis, but that twenty-four hours afterwards she had a chill and rise of temperature. Soon after the gauze was removed, salpingitis followed, and two months later, when I saw her, she had on the right side an encysted pyosalpinx, holding more than a pint of pus, and was so feeble from sepsis that her friends declined to have any operation done. Such cases, I presume, are familiar to most of you who practice gynecology, and I need not take your time to relate more specific instances of what I believe to be due to the accident of too tight tamponing, especially of the cervical canal.

Many of my cases have been in the practice of such excellent surgeons, I cannot think the accident due to want of attention to antiseptic precautions, and while divulsion of a cervix or the most gentle scraping of an endometrium may occasionally be followed by considerable disturbance, the result is not generally an encysted salpingitis. Therefore, I do not think the accident the result of the dilatation nor of infection at the time of the operation, but a careful examination of the histories of more than a dozen such cases points to the tampon as the cause of tubal disease.

The original idea that gauze was necessary to keep the neck of the uterus open after thorough dilatation, as well as to drain the uterus, was manifestly based upon two errors. First, the uterine canal does not close down and prevent drainage after such operation; and secondly, iodoform gauze is not a drainage-tube, and does not remove the pus that may ooze into it. The statement that the gauze tightly packed in the cavity of the uterus after curettement causes a kind of involution, or that it improves the circulation of the parts, is not affirmatively proved by the cases I have seen, while often the immediate effect of dilatation, curettement with a dull instrument and thorough swabbing with carbolic acid or chloride of zinc, is followed by loss of bulk, reduction of tumefaction and, it seems to me, the consequent improvement of circulation without tamponing. Of course it is understood that as perfect drainage of the uterus as it is possible to secure is aimed at always. If more attention was given to maintaining a proper position of the organ after curettement, and less reliance placed upon gauze or any other device to secure drainage, better results would be obtained and fewer accidents occur. All must have observed after curettement and packing that when the gauze is removed, the last layers contain some detritus and often pus, which has not been drained, but retained. Iodoform gauze is not an antiseptic, and within the uterus allows only the bloody serum to escape, and retards putrefactive changes, but does not remove or sterilize pus that comes down from a diseased tube. In purulent endometritis, therefore, with the organ movable and in normal position, the gauze tampon is not necessary. If the uterus is fixed even slightly, it is dangerous because of the

probability of catarrhal salpingitis being present, and the danger increases in proportion to the firmness of the tampon. If the uterus is fixed in a malposition, means ought first to be employed to release the adhesions and to restore the organ to as nearly a normal position as possible before curettement, and no gauze, or but a very light tampon of it, ought then to be applied.

Among the agents to be employed to release adhesions, and to thus pave the way for proper drainage, I would place galvanism at the head of the list, and for those who do not use this, the hot vaginal douche, vaginal tampons of boro-glycerid, iodine, etc. The first serious accident from curettement and packing I ever saw was in a case with adhesions, and the woman was very ill three months, and got up with double salpingitis.

In cases of hemorrhagic endometritis without polypoid growths or villosities, the good results attributed to the sharp curette and packing are more frequently due to the thorough dilatation, and to the topical application of a strong antiseptic, than to any other thing. I have often failed to cure these cases with the curette and tampon, and have obtained better results from thorough dilatation and topical applications, especially in young women.

The tight tampon of iodoform gauze is necessary often to stop hemorrhage, but in this case I remove it in thirty-six hours.

I have several times succeeded in draining through the uterus an encysted salpingitis, where the uterus and tumor were movable, by full dilatation and very tight tamponing. In these cases, the tube was not folded on itself and displaced, but was spindle shaped and in nearly the normal position. There the tight tampon seems to me to be called for, but this interesting subject is not within the proper limits of this paper.

HYDROTHERAPY IN APPENDICITIS.*

GEORGE E. CLARK, M.D., SKANEATELES, N. Y.

Hydrotherapy in the treatment of appendicitis is by no means new, but I feel sure the subject has not yet received due attention.

From the opinions expressed by more than twenty physicians writing upon this subject in our journals, and from a perusal of the articles upon appendicitis in five recent text-books of medicine, I gather that the use of water is sometimes ignored, sometimes condemned and never mentioned favorably, except in the most casual way, when it is advised for the purpose of moving the bowels.

This, I maintain, is *not* doing it justice!

I shall endeavor to show you, by a report of seven consecutive cases treated and cured by the use of water alone, that there is more in hydrotherapy than the simple moving of the bowels. Osler, of Baltimore, says: "Briefly stated, localized pain in the right iliac fossa, with or without induration or tumor, the existence of McBurney's tender point, fever, furred tongue, vomiting, constipation or diarrhœa, indicate appendicitis."

All of my cases had localized pain in the right iliac fossa, induration or tumor, McBurney's tender point, fever and furred tongue. Some had vomiting, all had diarrhœa or constipation, or diarrhœa followed by constipation.

The treatment in each case was as follows: Cloths, about four inches square, wet in cold water, were applied to the right iliac region and changed, if necessary every three to five minutes, until the pain was completely relieved. Cold, *not warm*, water enemata were given every one to three hours, night and day, according to the severity of the case, and continued until the cure was complete. In some cases an initial dose of phenacetine was given where the temperature was high, but beyond this no medicinal treatment whatever was adopted. The patients

† Read before the Central N. Y. Medical Association.

were all put upon a liquid diet until convalescent. The following is a brief synopsis of the cases:

Case I.—F. B., farmer, aged 46. The attack followed severe effort in lifting accompanied with a blow from the handle of a plow. About twelve hours later he became conscious of pain in the right iliac fossa, which soon became severe and was accompanied with excessive tenderness; so much so that he could not straighten up. When seen by me the next day, he was in bed, lying on his back with the thigh flexed, complaining of pain on the slightes motion. Temperature was 100½° F., and the pulse not much elevated. Examination revealed an indurated area in the right iliac fossa, the McBurney point very tender, the abdomen neither distended nor tender, except in the region of the appendix; here, however, the least pressure caused great pain. The bowels were constipated, but there had been no vomiting.

Cold water externally and cold water enemata, at first every four hours and later three times daily, brought the temperature to normal in forty-eight hours. The induration and tenderness persisted for several days, but grew constantly less. For some time after, the man noticed a tearing sensation whenever an extra strain was put upon the muscles in that region, but there has been no second attack. I paid my first visit to this patient on the 15th day of the month, and my last on the 21st day—six days' treatment in all.

Case II.—Mrs. H., aged 23, June 24th, was seized with acute pain in right iliac region, seeming to shoot down toward the bladder. The temperature was normal, there was no tumor or induration, and very little tenderness on pressure. I made a diagnosis of renal colic and relieved the pain promptly by a hypodermic injection of morphia. I was called again the same day and was again obliged to resort to the hypodermic needle. On calling the next day I found the patient not yet well, but so much better that I did not visit her on the following day. June 27th, the fourth day from my first visit, I was called once more. I found the patient suffering great pain in the right iliac region. There was a decided induration and excessive tenderness, McBurney's point being well marked. The temperature was 103°F., tongue furred and the bowels constipated. I began the cold water external applications at once, but she had no enemata until her mother arrived in the evening, after which time they were given every three hours. About forty-eight hours later the temperature was normal, the pain in the meantime having quite gone, and the induration had almost, if not entirely, disappeared. In this case a quantity of seeds came away with the enemata. I made my last visit July 2d, nine days after the symptoms which I diagnosed as renal colic, five days after the positive diagnosis of appendicitis.

Case III. Walter L., aged 14, on the afternoon of September 25th, began to have pain on the right side of the abdomen, which steadily increased until early next morning, by which time it had become excessive and was accompanied by vomiting and diarrhœa. At this time I was called. I found the boy lying with the right thigh flexed, holding the bed clothes away from his side with his hand. The tenderness was so great that the mere approach of the hand would make him flinch. The whole abdomen seemed tender, but this was probably owing to the disturbance pressure caused in the iliac region. All the classical signs of appendicitis were present; the temperature was 105° F. There was a delay of a few hours in getting assistance, and, in the meantime small doses of phenacetine were given to reduce the temperature. In this case the enemata were given at first every hour. In forty-eight hours from my first visit the temperature was normal, the tenderness almost gone and very little induration left. My last visit was made on the 28th, three days after my first call, and two days later the boy rode five miles over a very rough road without any pain or inconvenience.

Case IV. This was a second attack occurring to the boy just mentioned. On January 14th, about four months later you will observe, after an afternoon's skating, he was taken with a repetition of his previous symptoms. Profiting by former experience, his treatment was at once started and by the time I arrived, several hours later, he was somewhat relieved. His temperature was 102° F., the induration was slight, if present at all; there was considerable pain; he had vomited and his bowels were constipated. No medicine

was given. I made him three visits. He was well on the 16th, *i. e.*, in three days. I learn that he has since had one slight attack, but found it unnecessary to send for me.

Case V. Miss R., aged 18, was a case seen in consultation. She was taken ill September 24th with a chill, vomiting, diarrhœa, fever and pain in the abdomen. Her physician was called on the following day. Within a short time she developed a decided tumor in the right iliac region, accompanied with excessive tenderness, especially over McBurney's point. She was treated with turpentine, morphine, some powders for her nausea and gradually increasing doses of quinine until six grains every two hours were taken. The abdomen was poulticed and the tumor painted with iodine. This treatment was continued for eleven days, the temperature ranging from 102° to 103° during the whole of that time in spite of the large doses of quinine which were given. On October 6th I saw her in consultation, and as her physician was about to start for the World's Fair, she was left in my hands. At this time the temperature was 102½°, the tenderness was great and the tumor could be seen very plainly. It was from three to four inches long and perhaps one and one-half inches wide. No fluctuation could be felt, although on account of the tenderness, deep pressure was not made. A rectal examination was not made. I continued the treatment for the first twenty-four hours. At the end of that time the temperature was one degree higher, and there was in *no* respect a change for the better. I then stopped all the medicine and the poultices. I gave one dose of phenacetine—five grains. I ordered constant cold water applications to the tumor and cold water enemata every two or three hours. I met with some opposition from the family, but I overcame it. At my next visit, twenty-four hours later, that girl's temperature was normal and the tumor was fully half gone. In three days she got out of bed for a few minutes, and she had not a single bad symptom after that. I made her in all but seven visits. She has had no return of the trouble.

Case VI. Was also seen in consultation. W. H., carpenter, aged 25. March 6th, at 3.30 P. M., he was taken with pain in right iliac region, accompanied with vomiting and diarrhœa. His pain increased rapidly, and his physician was called at 7 P. M. The physician, from these symptoms and the presence of McBurney's point, made a diagnosis of appendicitis. The temperature was, at this time, about 102° F. He was given calomel as a laxative, phenacetine for his fever, and morphine for his pain. The abdomen was poulticed. The patient grew worse, and on March 9th I was called in consultation. At this time, the temperature, in spite of the phenacetine, was 102° F., and I learned that it had ranged from that to 103°. There was marked induration in the iliac region and great tenderness. I could detect no fluctuation. The poultices and the medicines were stopped, cold water applied externally and cold enemata given every hour. The temperature was reduced promptly and the pain and induration disappeared so quickly that, two days later, his physician reported that he was "kicking because he could not get out of bed." His physician made his last visit on March 15th, nine days after the inception of the disease and six days after the water treatment was begun. I have recently seen this patient, and learn that he had some pain, due to adhesions in the right iliac region, which persisted for a week or more after he began to go about; this gradually disappeared and he has since had no trouble whatsoever.

Case VII. Was seen after he had been treated for nearly a week by another physician. J. H., aged 19, laborer. Six days before my first visit he was taken ill with fever, accompanied by pain on the right side of the abdomen. The pain gradually increased and was soon accompanied with vomiting and diarrhœa. He was treated by a physician, but, as I saw only the patient, I can give no particulars of the treatment further than to say it was medicinal. The patient was not satisfied with his progress and I was called. I found him with a temperature of 103½° F. There was an indurated mass in the right iliac fossa, about the size of a small egg. The tenderness was marked but not excessive. For comfort, the thigh was kept flexed. The tongue was thickly coated and the bowels constipated. The cold water treatment brought his temperature to normal within three days, and his other symptoms had so far subsided by that time that I did not visit him again. He kept to the

house for nearly a week longer, because of pain on his making certain movements. After this he went to work on a farm. When I saw him, about two weeks ago, he stated that he had been perfectly well ever since.

In reviewing these cases, it is worthy of note that, taking into consideration the comparative severity of the symptoms and the time which had elapsed between the onset of the disease and the first application of the water, the success of the treatment seems to have been largely in proportion to the frequency of the enemata. For instance, in Case I., where the enemata were given only every four hours and, later, thrice daily, the cure was slow and there was pain from adhesions, lasting for some time after. In Case II., where the enemata were given steadily every three hours, although the symptoms were much more severe, and not at first recognized, the *cure* was more prompt. In Case III., perhaps the most acute of the seven, the enemata were given every hour and the cure was still more prompt. In general, the same reasoning applies to the other cases. In Cases V., VI. and VII., in each of which other treatment had previously been tried, the striking and almost immediate improvement consequent upon the change could not be attributed to anything but the use of the water.

These enemata were not given for the purpose of moving the bowels, although they incidentally had that effect. They were given with the belief that they had some intrinsic influence upon the course of the disease, the proof of this being their greater efficacy when given more frequently—more frequently than could possibly be needed in order to empty the large intestine. Cold reduces temperature not only by the local abstraction of heat, but also by influencing the circulation of the part. It is likely that some of the water finds its way round to the cecum, but I doubt if much good is effected in that way. The upper part of the rectum lies in the median line at the usual level of the apppendix, and they cannot be much more than two inches apart. Now, the application of cold water causes, at first, a contraction of the blood-vessels, which is soon followed by a dilatation, the dilatation being much more persistent than the contraction. Why may not this reactionary dilatation withdraw some blood from the region of the appendix and so lessen the inflammation there?

I am *not* a fanatic. I do *not* believe that cold water will cure *every* case of appendicitis. I *do* believe that surgical measures are *sometimes* necessary. I was rooted and grounded in the belief that as soon as the diagnosis could be made, the appendix should be removed. As to that, I have changed my mind. I now believe that *cold* water, used *early* and *freely* and *often*, in the manner indicated, should *first* be tried, and, if the symptoms do not improve within twenty-four hours, surgical measures should be considered.

Public Health Service.

Whatever then may be the merits of anti-toxine as a cure for diphtheria, there can be no mistake in the policy of public cleanliness and of constantly improved health administration. Our American cities come short of their European contemporaries in most points of municipal organization and service. Fortunately, in the matter of public health work we have less to be ashamed of than in almost any other particular. There have been some scandals in the Health Department of New York City, but there has been very much to commend. All that is needed to bring our American municipal health administration up to a point of scientific and practical efficiency equal to that of the very best managed foreign cities, is a reform of our municipal government in general respects. The work of health boards is necessarily hampered at many points by the existence of corruption, of spoils methods and of ignorance and inefficiency in other departments of city government.—*Review of Reviews.*

RECTAL feeding may be carried on by means of a mixture of two eggs, twenty grains of pepsin, ten grains of chloride of sodium, and six ounces of water. This mixture should be slightly warmed, thoroughly agitated, and then gently introduced into the bowels by means of a syringe. To facilitate the entrance of the fluid into the intestines it is well to put the patient in a position with the hips much elevated above the head, either the knee-chest position or with two or three pillows resting beneath the hips.—*Toledo Medical Compend.*

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SATURDAY, AUGUST 3, 1895.

EDITORIAL.

THE SERUM TREATMENT OF MALIGNANT GROWTHS.

If the divinity of medicine is to be incarnate in the microbe, so long as the profession prostrates itself before the shrine of bactériology and hails the incoherent utterances of some laboratory devotees, frothing in convulsions, as oracles from the divinity delivered in answer to the urgent questions for which the god is importuned with copious libations and the immolation of common-sense, so long may we expect to find the ultimate cause of all disease believed to be inherent in some germ. It must be so, else science stultifies itself—and science, being truth (the single fact upon which all scientists agree, each having regard to his own modicum of knowledge) science may not err.

True it is that thus far science has failed to absolutely prove the causal relation of a micro-organism with any, even the infectious diseases. It undoubtedly has demonstrated a constant relationship, presumably causal, between certain infectious diseases and certain forms of microbic life, and by searching experimentation and careful observation has justified the conclusions reached as logical and best in harmony with the premises provided. It is one thing to tentatively admit this causal relationship in a few highly infectious diseases where research has palpably demonstrated the constant presence of one or another specific form of germ life, but it is quite another matter to conclude therefrom, that all diseases are due to specific organims, and it requires the active exercise of an unreasoning faith—the faith that is the substance of things hoped for, the evidence of things not seen—to accept the hypothesis despite the fact that none of the evidences of microbic influence can be found by any of the tests known in bacteriological laboratories.

The evolution of the anti-toxine treatment of diphtheria, tetanus, and the like, may be called a scientific process based upon logical principles. Not so, however, in the case of other pathological condi-

tions, and notably the malignant neoplasms. Here the serum treatment must be admitted as based upon empiricism purely.

It will be of interest to review the recent investigations of the treatment of malignant tumors by the injections of the toxins obtained from cultures of the bacillus of erysipelas.

About two years ago, Dr. Coley, of New York, presented a table of thirty-eight cases of malignant disease in which erysipelas cured either by accident or intent, and drew therefrom the following conclusions:

(1.) The curative effect of erysipelas upon malignant tumors is an established fact.

(2.) The action upon sarcoma is more powerful than upon carcinoma—in about the ratio of 3 to 1.

(3.) The treatment of inoperable malignant tumors by repeated inoculations of erysipelas is both practicable and not attended with great risk.

(4.) The curative action is systemic, and probably due chiefly to the toxic products of the streptococcus, which products may be isolated and used without producing erysipelas.

(5.) This method should not be employed indiscriminately until further experiments have proved its limitations.

A year since, Dr. Coley reported twenty-five cases of sarcoma and ten cases of carcinoma treated by what he terms the combined toxins obtained from pure cultures of the bacillus of erysipelas and the bacillus of prodigiosus. He finds that injections of toxins give as good results as those obtained by the infection of the micro-organism itself. His experience was that the treatment by this method was of very little use in gland carcinoma; beneficial to a slight extent in epithelioma; and of great benefit to sarcoma, especially when the growth is situated in soft tissues. Of the twenty-five cases of sarcoma six appeared to be cured; one case of sarcoma of the tonsil and neck which had twice recurred was cured and remained well three years afterwards. Of the remaining nineteen cases, nine showed marked improvement, eight slight improvement, and two no improvement whatever.

Again Dr. Coley relates (*Medical Record*, May 18th, 1895) his further researches into the use of erysipelas toxins and erysipelas serum. These confirm his first conclusions. He has improved his method of treatment by using the blood serum of a horse subjected to the action of erysipelas. He relates the following cases: (1) A patient with a rapidly recurring and inoperable carcinoma of the breast was treated for several weeks with the toxins: the growth of the tumor was checked, but there was no decrease in size. The serum was then injected for two weeks, but without any apparent effect. (2) A woman, aged 50, had an enormous inoperable carcinoma of the breast. The injections produced a diminution in the size of the tumor: later erysipelas toxins were substituted for the serum. In two months the growth was reduced one-half size. Then uncontrollable and fatal hemorrhage was produced by she erosion of a vessel. (3) In a case of probable carcinoma of the neck and sternum, the tumor ceased to grow and became less fixed and slightly smaller.

He observes that the doses have not been pushed to anything like the probable limit of safety. He is now using much larger doses in eight cases of carcinoma and sarcoma.

He relates three cases of epithelioma similarly treated. In one case, already published, of inoperable epithelioma of the chin, lower jaw and floor of the mouth he could find no evidence of the disease eight months after the injections had been discontinued. In the second case of recurrent epithelioma of the face the growth entirely disappeared. In a third case of inoperable epithelioma of the tongue the growth became smaller and less fixed.

Emmerich and Scholl (*Deut. Med. Woch.*,) relate their clinical experience of the treatment of carcinoma with erysipelas

serum. The inoculate sheep with erysipelas cultures and free the blood serum from micro-organisms by filtration. They have treated a number of cases of carcinoma and sarcoma with this serum during the past half year. In only two cases were there no results, and here there was secondary infection with suppurative changes in the carcinoma. Details are given of six mostly advanced and quite hopeless cases; four of these were examples of recurrent mammary carcinoma, another of rapidly-growing and inoperable mammary carcinoma, and a sixth of long-standing cancroid. 1, A recurrent mass was present in the scar as well as carcinomatous glands in the axilla, and the whole of the infra-scapular space was infiltrated with new growths. The masses in the scar and axilla disappeared under the treatment, and the improvement was such that the patient could move her arm. 2, The hard masses about the scar disappeared, but a larger mass did not become less before the treatment had to be suspended. 3, There was an ulcerating mammary carcinoma with metastases. Several of the masses became less, and the general condition of the patient greatly improved. 4, A metastasis in the upper arm disappeared in another case. 5, A large and rapidly-growing mass of carcinoma in the breast and axillary glands rapidly became less. The mass in the axilla diminished to half its original size in fourteen days. 6, Great diminution in size occurred in a cancroid in the face. The authors think that the action of the serum is specific; it is probably even more efficient in sarcoma than carcinoma. It cannot yet be decided whether it acts on all forms of carcinoma. The younger the carcinoma the better the results, but older carcinomata soften and become absorbed. The amount of the injection must depend on the size of the growth and the condition of the patient; 1 to 4 c.cm. of the serum injected daily into the growth suffices for small tumors; 10, 15, 20, or 25 c.cm. may be injected into a large tumor. No pain was noted with the smaller injections, and in no case was it necessary to give up the treatment on account of pain. There was usually no fever. The action on the general health was remarkable. A pseudo-erysipelas was sometimes noted, lasting from twenty-four to forty-eight hours. The serum should be used not only in inoperable and hopeless cases, but, injected before operation, it should complete the work of the surgeon, preventing recurrence.

Freymuth has employed the treatment in two cases. In one of these (epithelioma of the tongue) the patient was *in extremis* and the treatment did not avert death. The tumor itself, however, was greatly modified, appearing to undergo a kind of semi-fluid caseous transformation. In the second case (recurrent sarcoma of the upper jaw) the patient developed during the treatment a genuine erysipelas, which he communicated to his wife who was nursing him. He bore the attack well, however, and here also the effect of the serum treatment on the tumor was very remarkable. The illness of the wife shows that the serum is to be used with the greatest care.

P. Bruns having seen for himself the good effect which erysipelas has on certain cases of cancer was readily induced to try the method of Emmerich and Scholl. He injected the serum in six cases of malignant tumor, but his results were disappointing. He noticed no diminution in in the size of the growths; on the other hand the treatment caused considerable respiratory and circulatory disturbances. In all the cases there was a rise of temperature proportionate to the amount of serum injected, with systemic disturbances. In one case the temperature remained high for eight days, and the patient complained of severe pains in the limbs. The cause of these accidents was that the serum had not been properly sterilized; after a few days it showed albuminous flakes and cocci.

Emmerich and Scholl reply to Bruns' strictures on the serum treatment, complain that a case in which Bruns reported to them a decided diminution in the growth is omitted; that the serum was sent to him for preliminary trial during a time when its exact method of preparation was not decided on; and that too many cases were treated with too little of the serum. They further state that the serum used in some of these cases had become infected and spoilt after transmission, and they express surprise that it should have been used after it had become flocculent. They have treated cases with much larger doses than Bruns with no unpleasant after-ef-

fects. The alarming symptoms produced were due to the injection of the serum into the vessels of the growth. They advocate equally with Bruns early operation.

Before the Munich Medical Society Angerer maintained that serum had no specific curative action. Emmerich treated five cases in the author's clinic. In the first two cases no histological changes could be found, the injections having been given before operation. In the third case erysipelas came on and threatened the patient's life. Neither the injections nor the erysipelas had any effect on the tumor. In the fourth case (No. 1 in Emmerich's paper), a diminution in the nodules was observed, but the erysipelas which supervened might account for it. The subsequent history showed that after the patient's discharge from the hospital new nodules appeared, and death occurred from cachexia. The subsequent history of the fifth case (No. 2 Emmerich) was also unfavorable. The author emphasises the fact that great caution must be exercisep in drawing conclusions.

Zimmermann reported a case in which a diminution in the tumor took place. An afebrile erysipelas appeared on the fifth day, and lasted two days.

Influence of Habitual Inclination of Pelvis on the Pelvic Canal.

Hirst (*University Medical Magazine*) points out that although the pelvic obliquity on account of its normal variations can generally be neglected in regard to childbirth, the influence of habitual inclination of the pelvis on the development of the pelvic bones and pelvic canal has been neglected. Exaggerated inclination of the pelvis in childhood so that the trunk weight is received by the sacrum increases the forward rotation of that bone, diminishing the antero-posterior diameter of the inlet and the depth of the canal, while excessive action of the rotator muscles of the thigh tends to widen the outlet. On the other hand, if the pelvic inclination is diminished, the top of the sacrum is pushed backward, the antero-posterior diameter of the inlet is increased, as is also the depth of the canal; while pull on the ilio-psoas muscles, separating the iliac bones apart, and by compensatory displacement of the ischia, narrows the transverse diameter of the pelvic outlet.

A New Operation in Internal Hemorrhoids.

Dr. Janes (*Provincial Med. Jour.*) reports a new method for treating internal hemorrhoids by means of a clamp and suture instead of a cautery. After divulsing the sphincters he seizes each hemorrhoid and applies the clamp to its bone, cuts away the pile and approximates the mucous membrane of the stump with catgut sutures as follows: The ligature is threaded with two needles. Beginning at one end of the wound, one needle is made to transfix each side of the mucous membrane; then by means of a double continuous suture the surfaces are united with a cobbler's stitch, and in addition each time the needles are drawn through an overknot is tied. This form of suture is unique, as it prevents any possible bleeding and greatly lessens the risk of the deeper part of wound becoming infected.

Thioform.

Thioform, a chemical combination of bismuth, sulpher and salicylic acid, has been brought foward as a substitute for iodoform. It is a tasteless and odorless powder of a greenish-yellow color. When used as a dressing for ulcers, wounds, burns, etc., thioform has shown itself to be equal, if not superior, to iodoform. However, the specific action of iodoform in tuberculous affections could not be expected from the use of thioform, as the latter does not contain iodine. Finally, thioform has been used internally in doses of fifteen grains. Its action was similar, but superior, to bismuth salicylate.—*Texas Courier Record.*

Alumnol in Dermatology.

Dr. J. Abbott Cantrell (*College and Clinical Record*) says: "Alumnol has proven itself of decided advantage in my service at the Philadelphia Polyclinic, where I have advised its use in a hundred cases. It was found servicable in acute vesicular eczema, erythema intertrigo, chronic eczema, non-syphilitic ulcers, ringworm and impetigo contagiosa. It was used in the form of powder, 1 part to 3 parts of starch, and as an ointment in strength varying from 20 grains to 2 drams to the ounce, and as a solution in the proportion of 2 drams to the ounce of water."

ABSTRACTS.

THE PSYCHOLOGY OF WOMAN.*

In outlining some of the psychological pecularities of woman as revealed by modern anthropological researches, I shall endeavor to confine myself to those points upon which investigators generally agree, simply omitting those still in dispute, or mentioning them only as questioned.

Psychology is no longer studied apart from physiology. We must therefore first notice some of the secondary sexual characteristics of woman in respect to her physical structure. Woman's form is more rounded and graceful, less bony and angular, having relatively more fat and less muscle. As shown by the dynamometer, woman's strength is at the most only about two-thirds that of man, while her height is as sixteen to seventeen and her weight as nine to ten. Owing to the greater inclination of the pelvis, woman is somewhat less erect than man. The head also is carried less upright, and the gait is comparatively unsteady and indirect. The greater length of the first finger as compared with the third is a feminine peculiarity. This relation, seldom found in man, is not uncommon among women. It gives grace to the hand, and would seem to be an instance of higher evolution, not being found among apes or savages. Woman's lung capacity is in proportion to her size much less than man's, and the amount of carbonic acid expired is relatively less. Differences in the blood are well marked and are said to be significant. In woman the blood contains a less number of red corpuscles—about 4,500,000 in a cubic millimeter to 5,000,000 in man. It has a larger percentage of water and a lower specific gravity. As compared with man, therefore, woman is naturally somewhat anæmic. The pulse-beat is from eight to twelve per minute faster than in man.

Statistics show that about one hundred and five boys are born to every one hundred girls in Europe and America. If a count be made of boys and girls or men and women at any age after the first year, the females are found to be in a considerable excess, and this notwithstanding the decimation of women by diseases incidental to the child-bearing stage of their lives. These results, formerly attributed to accidental causes, are now known to be due to the greater natural mortality of males, and this is found to be in harmony with another series of sexual differences, namely, the greater power of woman to resist nearly all diseases. They endure surgical operations better than men, and recover more easily from the effects of wounds. They also grow old less rapidly and live longer. In brief, contrary to popular opinion, woman is more hardy than man, and possesses a larger reserve of vitality. The long-disputed questions about woman's brain are now approaching solution in a few leading points. If we consider the weight of the brain relatively to the height of the body, it appears that woman's brain is smaller; but if, as is more just, we consider the weight of the brain relatively to the weight of the body, it appears that there is nearly perfect equality, the difference, if any, being in favor of woman. Of more significance in its bearing upon woman's mental capacity is the relative size of the different parts of the brain. In the cerebrum itself the frontal region is not, as has been supposed, smaller in woman, but rather larger relatively. The same is true of the occipital lobe. But the parietal lobe is somewhat smaller. It is now believed, however, that a preponderance of the frontal region does not imply intellectual superiority, as was formerly supposed, but that the parietal region is really the more important. As a balance, perhaps, to these female deficiences, we may note that the circulation of the blood seems to be somewhat greater in woman's brain. In respect to her whole physical structure woman is less modified than man and shows less tendency to variation. Women are more alike than men. Concerning the hypothesis of the infantile character of woman, the above summary is significant. We see at

*G. T. W. Patrick in The Popular Science Monthly, June. Condensed for Public Opinion.

once that a large proportion of her physical peculiarities are also infantile traits.

Let us now trace well-marked psychical differences between man and woman. First, as regards the senses, the popular opinion that woman's sensibility is finer than man's does not seem to be verified by experiment. Havelock Ellis, who sums up a large amount of evidence on this head, believes with Galton that women have, on the whole, somewhat less sensibility than men, and that it is their greater affectability or nervous irritability that has given rise to the popular notion of their finer sensibility. The general opinion that women are superior to men in manual dexterity seems to be borne out neither by actual experiment nor by accurate observation of woman's work in the mechanical arts. Havelock Ellis's inquiries concerning woman's skill in laboratories, in the cigar and cigarette trades, in cotton spinning and woolen weaving, etc., led him to the result that with few exceptions the finer and more dexterous work is done by man in fields where both sexes have equal opportunities and practice. In perception, woman is in general decidedly quicker than man. She reads a paragraph or book more quickly, and knowledge of the subject being equal, she grasps more of it. In perception of objects she grasps more quickly a number of wholes or groups, and has a rapid unreasoned perception of relations which has the appearance of intuition. Her perception of details, however, is less accurate than man's, and her rapid reference of things to their proper classes extends only to matters of common human experience. In apperception the subjective factor is larger in woman, and she sees things more from the standpoint of her own experience, wishes, and prejudices. Even more than in man, where feeling is strong, objective perception is blind. Hence women make poorer critics than men, and more rarely are they impartial judges.

For the formation of concepts, especially the more abstract ones, woman's mind is less adapted than man's. She thinks more in terms of the concrete and individual. As Lotze keenly remarks, women excel in arranging things in the order of space, men in the order of time. Men try to bring things under a general rule, without so much regard to the fitness or symmetry of the result. Women care less for general rules, and are inclined to look only to the immediate end in view, aiming to make each thing complete in itself and harmonious with its surroundings. In respect to memory, as far as any general statements can be made, woman is superior. In reasoning of the quick associative kind women are more apt than men, but in slow logical reasoning, whether deductive or inductive, they are markedly deficient. They lack logical feeling, and are less disturbed by inconsistency. Analysis is relatively distasteful to them, and they less readily comprehend the relation of the part to the whole. They are thus less adapted to the plodding, analytical work of science, discovery, or invention. Their interest lies rather with the finished product. In general, woman's thought is less methodical and less deep. The arts, sciences, and philosophy owe their progress more to man than to woman.

What woman loses in profundity she gains in quickness. She excels in tact, and extricates herself from a difficulty with astonishing adroitness. In language she is more apt than man. Experience in coeducational institutions shows that women are more faithful and punctilious than men, and at least equally apt. In many kinds of routine work, especially that requiring patience, women are superior, but they are less able to endure protracted overwork. We have seen that woman is less modified physically than man and varies less from the average. The same is true mentally. Women are more alike than men and more normal, as it were. Woman loves the old, the tried, and the customary. She is conservative, and acts as society's balance-wheel. Man represents variation. He reforms, explores, thinks out a new way. One of the most marked differences between man and woman is the greater excitability of the nerve centers in the latter. Woman possesses in a higher degree than man the fundamental property of all nervous tissue, irritability, or response to any stimulus. That woman is more emotional than man is only another way of stating the same fact. Sympathy, pity, and charity are stronger in woman, and she is more prominent in works that spring from these sentiments, such as philanthropy and humane and charitable movements. Woman is more generous than man.

In morals a few distinctions between

the sexes are well determined. Male criminals outnumber female criminals about six to one. Some forms of crime, indeed, are much more common among women. When women do become criminals, their crimes are often marked by greater heinousness, cruelty, and depravity. Woman's appetites are not so strong and her passions are less intense. She is freer from intemperance and related forms of vice. The most marked moral superiority of woman appears in her altruism; her greatest moral defect in her untruthfulness. In her altruistic life of love and self-sacrifice woman shows herself the leader in the supreme virtue of Christian civilization. As far as she leads in this, so far does she fall behind in veracity. She has not the same conception of abstract truth as man, but thinks more of the good to be attained. Deception and ruse in woman, far more than in man, have become a habit of thought and speech. A series of conditions, social, intellectual, and physiological, have forced this habit upon her as a means of self-defense. Woman's religious nature is stronger than man's. She possesses in a marked degree the qualities of reverence, dependence, devotion, trust, and fidelity. Fear and timidity are feminine qualities, while faith is so natural to woman that she is disposed to credulity rather than to skepticism. From her mental differences the doctrine of woman's inferiority receives no support. But here again, as in her physical peculiarities, woman approaches the child type.

The hypothesis that woman approximates to the primitive rather than to the child type, that she represents arrested development, may be said to receive a certain amount of confirmation from her mental traits. That women are less modified mentally and are more alike than men also argues for arrested development. But in many of her mental traits woman departs further than man from the savage type. In her moral qualities she represents higher evolution. This is notably true in respect to her altruism, charity, sympathy, and pity. It has been shown by Geddes and Thomson, Fouillée, and others, that in many of the lower and simpler orders of animals the female is larger than the male. This is true, with exceptions, throughout the animal world as high as the amphibian, and is in close logical connection with certain other important differences between the sexes. These, observed also best among the lower orders, are as follows: The male is active, restless, agile. The female is passive and quiescent. She has lower temperature, greater longevity, and a larger fund of vitality; her birth is the accompaniment of conditions of better nourishment. The male is katabolic, representing the expenditure of energy, individualism, variation, and progress. The female is anabolic, representing economy and the building up, conserving, and reproductive functions. She is nearer to and more representative of the race.

Again, if it should be shown that woman conspicuously resembles the infant in body and mind, very unwarranted inferences might be drawn from this. It is true that the infant of the human species has certain curious points of resemblance to the lower animals, notably the ape, but it is equally true that the infant ape has certain marked resemblance to the human species which the adult ape does not have. By analogy we may infer that the human infant has closer resemblance to the more highly developed being of the future than the human adult has, and if woman is more like the child than man is, then she is more representative of the future being. The matter, in fact, reduces itself probably to this: that woman, like the child, represents the race type, while man represents those variable qualities by which mankind adapts itself to its surroundings. If superiority consists in adaption to present environment, then man is superior; if it consists in the possession of those underlying qualities which are essential to the race—past, present, and future—then woman is superior. Woman's more intimate connection with the life history of the race, her childlike, representative, and typical nature, her embodiment of the everlasting essentials of humanity, her at present arrested or retarded development—all these are indicated by modern anthropological studies. These results are indicated, not proved. They must be verified, supplemented, and no doubt, in some instances, corrected by future studies along these lines.

Cicero had a voice so pleasant that whenever it was known he was to speak, though only in an ordinary law case, the court immediately filled with people.

SOCIETY REPORTS.

OHIO STATE MEDICAL SOCIETY.

1895.

CONTINUED REPORT ON TYPHOID FEVER

was presented by John Eliot Woodbridge, M.D., Youngstown, O.

The paper was a supplementary report of cases of typhoid fever successfully treated with the following recipe administered in No. 5 capsules:

Calomel	℈ i
Guaiacol carb	℈ vi
Thymol	℈ v
Menthol	℈ i
Sacch. alb	℈ ii

Eucalyptol, as much as a pharmacist can get into the tablet.
(Sometimes a minute quantity of podophyllin is added.)

By this treatment the essayist claimed to be able to abort typhoid fever in cases that were seen early, before the appearance of the rose colored spots, and that in such cases the mortality is absolutely *nil.* His statistics now cover about 800 cases with nine deaths. He believes, with this therapy there is no need of restriction of diet, or the enjoining of rest.

DISCUSSION.

DR. E. W. MITCHELL, Cincinnati: Remembering how frequently we have been disappointed in special treatment of diseases of this kind, Dr. Woodbridge cannot wonder that this society met his first reports with the utmost incredulity, and we have demanded of him the proofs. The figures he here presents demand our most careful consideration. Allowing for mistakes in diagnosis, a record of 800 cases with nine deaths, a mortality of a little over one per cent., should appeal to us in the spirit of inquiry and trial. Too great skepticism is not more worthy of science than is too great credulity.

Intestinal antisepsis we believe is of value in the treatment of typhoid fever. It seems to me, and I believe I am in accord with many of the leading authors of this and other countries, we have assigned rather a secondary place to the use of antiseptics in the treatment of typhoid fever. I believe if Dr. Woodbridge had not struck from under us the very foundations upon which we had been accustomed to rely so may years, namely, rest and a liquid diet, we should have listened more readily to his statements. It seems, certainly, peculiar that we can disregard those things which pathology and experience have taught us in the past are of the utmost importance. For one, I am willing to say I am so far convinced by the report of Dr. Woodbridge, that I shall give this treatment a fair and impartial trial. We owe this to a member who comes before this society with a report so startling as his; we owe it to our patients; we owe it to ourselves. At the same time, I shall not give up the rest and liquid diet, and when required some of the applications of antipyresis. I hope the members of the society will try this treatment, so that when we assemble next year we shall be able to bring from a large number of men, from various sections of the country, treating various classes of people, in private and hospital practice (and the latter we know is the severest test), sufficient data to enable us to arrive at a correct idea as to the value of this treatment.

The mortality of typhoid fever in private practice under the prevailing methods of treatment is small. The mortality in hospitals, where we have the worst class of cases to treat, has been very greatly reduced of late years. Intestinal antisepsis has, no doubt, been one of the factors of this reduction. But much is due to rest, liquid diet, hydrotherapeutics, and other therapeutic measures. Some years ago, Dr. William Pepper reported a series of a hundred cases without a death treated by nitrate of silver. Still later on, he reported that in an experience of many years he had not lost any patients treated by this drug, who had come early

under treatment. Dr. Waugh has reported a hundred or more cases treated with the sulpho-carbolate of zinc. Thus we have various drugs reported by various men to give the best of results. So it seems to me we should consider this a portion of treatment, and I beleive when this mode comes to be applied generally and by different men, we shall find we still have use for those other means of treatment we have found of value.

The time is too short for me to touch at length upon the treatment of typhoid fever. These statistics compare very favorably with the cases Brandt reported from the use of the cold bath. We cannot in any disease rely infallibly and invariably upon any one known remedy. So, while I wish to acknowledge my conviction that Dr. Woodbridge has presented a most valuable means of treatment, I still believe we shall find use for other remedies.

One word I would like to say in regard to the Brandt treatment. Those of you who have tried it will recognize how invaluable it is in certain cases. No doubt we have all found it extremely difficult to apply in private practice, and especially in the country. Accidents will happen with it. Quite recently, in my service at the Cincinnati Hospital, I ordered the cold baths for a young girl who had just come in with typhoid fever. She resisted the baths and struggled violently. In the third bath she went into collapse after a struggle, and was with difficulty rallied. So this treatment must have its limitations.

Dr. Woodbridge's formula, if I remember correctly, contains calomel, guaiacol, thymol, menthol, eucalyptol, etc., many of which are volatile substances which are readily absorbed and which are carried by the blood in comparatively large proportions without producing damage to the blood or tissues. Perhaps we have in this fact the reason the combination gives better results than any single remedy we have used. Calomel has been recognized for a long time as one of the most valuable of our remedies. Guaiacol is readily absorbed and carried through the tissues, where it may produce its antiseptic effects. Thymol was used and warmly recommended as long ago as 1882 or 1883. It is recommended by Henry, in his "System of Therapeutics."

Dr. Geo. A. Packler, Cincinnati: It was really by my request the President asks me now to present to you a report of cases in which guaiacol was used externally for the purpose of producing an antiseptic effect. I have here a number of charts, which will be evidence in connection with what I may say. They were arranged by the nurses in the Cincinnati Hospital, and show the changes that occurred during the use of guaiacol. In order to bring this in touch with the subject under consideration, I would show two charts of cases of typhoid fever in which guaiacol was used. It is not necessary for me to go into this subject in detail, only that after reading the favorable reports from the other side of the water of experiments made by various men, I was induced to give this method of treatment a trial in the hospital, about the time Dr. Eichberg was trying the warm bath treatment, referred to this morning. The treatment consists in washing some portion of the body thoroughly, and painting into the skin some 20 to 25 drops of guaiacol. Two or three hours after the application the temperature reaches its lowest level. It begins to subside almost as soon as the first drop comes in contact with the skin. It has been shown that within a quarter of an hour after the administration of guaiacol, it is eliminated from the body. According to all observers, this remedy has proven to be a very efficacious antipyretic. In the majority of cases it can be employed, if judiciously applied, without any fear of disasterous results. In fact, although used now for over two years, no death has been reported from its use. Now and then we hear statements that we should be extremely cautious, and that the use of guaiacol applied in this manner is dangerous, because in a case in which the physician in attendance applied a very large amount collapse ensued. But such collapse has never been fatal. It is with this as with any other remedy expected to produce decided results. We must eliminate cases where we expect collapse. If we begin with the application of 10 drops, we can regulate the dose thereafter so we will not have any disasterous results.

The action of guaiacol is most positive. It was used in a variety of cases in my service during four months—altogether 30 cases of tuberculosis, pneumonia, tubercular peritonitis, and in some cases of

influenza as well as of typhoid fever. Of all these cases, there were two in which the guaiacol had absolutely no antipyretic effect. These were cases of facial erysipelas. In both cases the temperature rose after the application of guaiacol, in one case to 105° F. and the patient being on the verge of delirium, we were forced to administer another antipyretic.

Guaiacol, if introduced into the skin in this manner, is rapidly absorbed and produces no deleterious effects on the skin. No evil influence has as yet been exerted upon any internal organ, not even on the kidney through which a large amount of the guaiacol is eliminated. We have a remedy here with which we can avoid all the disagreeable symptoms which accompany so often the administration of other antipyretics, and even use the cold bath in properly selected cases. As Dr. Mitchell has told you, from the cold bath in some cases we will have bad results. And if we have a remedy, such as guaiacol promises to be, why not give it a fair trial? It is for this reason I bring the charts before you. It is not my desire to bring before you any treatment which will cure every case of typhoid fever. I did not hear the gentleman's additional report of cases, but I do not believe there is any specific cure for typhoid fever. That has been claimed. But these kings who have claimed that, have crowned themselves; they have been sitting on tottering thrones, and those thrones have tumbled to the dust.

DR. WOODBRIDGE: I merely want to correct an impression that may get out, that the reduction of temperature in typhoid fever is to be desired. I do not believe it. I do not believe the temperature in typhoid fever is indicative of danger, except as it is indicative of the absorption of ptomaines and no further.

The gentlemen who last discussed the subject, of course does not speak from knowledge. He speaks like William Osler, or I. N. Love, of St. Louis; he speaks like a great many others do—with no knowledge whatever of the subject. When I read my paper before the Section on Practice, of the American Medical Association, Professor Quin, from Chicago, said, "the honesty of these men, strangers to Dr. Woodbridge, cannot be questioned." Although he said to his students, "if any man says he can shorten the course of typhoid fever, he don't know what he says," when he heard my paper, he said he felt wholly incapacitated for discussing it, and if he did not give his patients the advantage of the treatment he would be remiscent to them.

If any gentlemen will show how any of these remedies produces the effect I will accept his knowledge, but I know typhoid fever can invariably be aborted in the early stages of the disease. Death can invariably be averted if the patient consults the physician at the outset of the disease and the physician institutes positive treatment before waiting to make a positive diagnosis. After the rose-spots appear, it is too late to abort the disease.

PHILADELPHIA ACADEMY OF SURGERY.

June 3, 1895.

Dr. A. Hewson exhibited:

I. A DIVIDED SPRING FOR HEAVY BONE-CUTTING FORCEPS.

The forceps which I now present to the Academy have been used in laminectomies with very great success. In the four laminectomies in which this instrument has been used, the ease with which the spinous processes and the laminæ have been cut was remarkable. The forceps are of the general style of the costatome, and, in addition to the purpose already mentioned, they are useful for cutting off plaster bandages. The blades are set at an obtuse angle to the handles so as to facilitate cutting the laminæ. The upper cutting blade is serrated like the teeth of a saw. The lower, which is also a cutting blade, has at its extremity a horizontal

projection, similar to that on the bandage shears, which is to be inserted beneath the laminæ and serves to keep the blade in position while cutting the bone. The handles are much longer, to give greater leverage. The new point to which I wish to direct your attention is the divided spring. All the other instruments of this kind are provided with a single spring, which keeps the blades apart. In this instrument the spring is divided so that it can be turned back when not in use, and when extended we get the full power of the spring to open the blades. I have found this a very useful appliance, and have used it both in the living and in the dead body. It greatly facilitates opening the spinal column for removing the cord, and for this purpose is much better than the spinal saw.

II. PORTABLE LIGATURE TUBE-HOLDER.

This holder resembles a gigantic test-tube holder, made of sheet iron, painted white. It consists of two uprights and three shelves. The uprights are 9¼ x 4 $\frac{5}{16}$ inches, having three hollow blocks, 2½ x $\frac{3}{8}$ inches, placed on the inside at the base 2¼ and 8¼ inches therefrom, leaving one inch above the top shelf. The three shelves are 13$\frac{5}{16}$ x 14$\frac{5}{16}$ inches. The first, or upper shelf, has five holes for the ligature-tube, 1½ inches in diameter. The second, or middle shelf, has the same number of holes, 1½ inches in diameter. The third, or bottom, is without holes. The difference in diameter of these holes adds equilibrium to the tubes when in place. On the under surface of each shelf at their extremities is a block (size already given in the uprights), with a projection which fits into the hollow block of the uprights. These blocks are opposite to those on the uprights, so that the projections may be pushed in when the holder is ready for use. The space occupied by the whole when apart is 13$\frac{5}{16}$ x 4$\frac{5}{16}$ x 1½ inches, and weighs in its present crude form eight pounds.

When in use the corks of the tubes are removed and placed in a proper antiseptic solution and the orifice of each tube covered with bichloride-gauze. The assistant removes the ligature as required with a pair of forceps, so that it is fresh from the solution to the hand of the operator without handling. This mode of procedure has been in operation at the Jefferson College Hospital for two years past and has given great satisfaction. The original thought of this mode of handling ligatures was brought about by having each ligature in a separate tube, but this was found to be a cause of infection, as it was impossible to insure the aseptic condition of a fine glass tube for each ligature, as well as consuming too much time in the preparation of such tubes.

III. SET OF ANATOMICAL INSTRUMENTS.

This set of anatomical instruments is of interest from a historical point of view, as it contains a syringe for fine injection of lymphatic vessels, used by my ancestor, William Hewson, F.R.S., in 1768, in his preparations. This brass syringe, you will observe, is in a perfect state of preservation, with four gold-pointed nozzles. I have used it in preparing fine injections of the lymphatics, as in that exhibited to the Academy about a year ago. The large brass syringe was used by my father (deceased) in his preparations during his student days, and by means of which, with the various attachments you now see, he prepared subjects for fine dissection. The sternum dilator gives the greatest width possible for aortic injection (6 x 8 inches). In making tallow and soap injections I have found that veins injected from the heart will hold one-quarter more material than the arteries injected by the aorta, and still some of the cutaneous veins of the extremities will not be filled owing to their finer valves. In introducing the preservative fluid I use altogether the hydrostatic method, the subjects taking from three to five gallons of fluid. The saw, you will observe, is the ordinary fine carpenter's pattern, with an upright handle about three inches from its extremity on the upper margin. The cutting edge has been lunated anteriorly, while the posterior or handle extremity is at right angles. This is a modification of the Forbes' saw, the cutting edge of which is lunated. The object attained by the modification is that it enables it to be used in sawing either the cranial bones or the laminæ, which is not the case with the entire lunated margin. The forceps just described is superior to the saw for the laminæ, giving greater space and more rapidity of action, besides avoiding all risk of injury to the spinal nerves. The case contains, in addition to the above,

spaces for two balls of twine (large and small), Hey's saw, enterotome, brain-knife, blowpipe, hammer, chisel, large incision knife, student's dissecting case with its accompaniments, and stopcock pipes of various sizes for immediate introduction into the vessels.

Dr. C. W. Dulles read a paper on

FRACTURE OF THE SKULL.

(See page 132.)

DISCUSSION.

DR. T. G. MORTON: Has the alteration in the conformation of the skull, I mean the shortening of the axis in the direction of the applied force and the lengthening of the transverse axes, been accurately determined by measurement?

DR. DULLES: Yes; the alteration has been carefully measured and there is an appreciable difference, the amount of which is mentioned in my former paper.

DR. HEWSON: In connection with the remarks upon the fractures of the clinoid processes, have you taken into consideration the fact of the difference in the height of the free concave margin and anterior attached extremities to the posterior clinoid processes? Owing to this, the portion of the tentorium open for the passage of the nervous substance is triangular, with curved sides, and thus much higher than its attached anterior extremities to the posterior clinoid processes. The direction of the free margin of the tentorium is pointed upward over the superior vermiform process of the cerebellum, this margin being higher than its anterior attachment. I only wish to know if the direction of the traction upon the posterior clinoid processes contribute anything to the fracture? The point I wish to ask is, have you observed any laceration of the margins of this opening?

DR. DULLES: Whether or not the posterior clinoid processes are higher than the arch of the tentorium depends much on the way in which the skull is held. I should think that under ordinary circumstances, when the head is held erect, they are about on the same level.

DR. HEWSON: The tentorium arches upward.

DR. DULLES: I have not overlooked this fact in my study of fractures of the skull. Under ordinary circumstances the curve of the tentorium would supply an amount of slack material which would prevent any pull on the clinoid processes. But it must be remembered that the tentorium rests upon the cerebellum and is held tense by the cerebrum above the cerebellum, and is so attached that the latter occupies a closed, unyielding case. The brain-substance is so largely made up of water that it is almost as incompressible as water [which is practically entirely incompressible] and the cerebellum will hold up the tentorium almost as effectually as if it were made of marble, and so cause a pull at its posterior part to be transmitted to its anterior attachments. This I say only by way of a suggested explanation of fractures of the clinoid processes; I have no demonstration of the theory to offer.

Method in Diphtheria.

F. Kastorsky (*Brit. Med. Jour.*) reports thirty-seven cases of diphtheria (in three adults and thirty-four children) treated and cured by painting with a ten per cent. alcoholic solution of menthol. The paintings (by means of a piece of cotton wool) were usually carried out three times daily. In some cases, however, a single free application was followed by complete disappearance of false membranes within two days. A marked improvement in the patient's general condition was invariably noticed from the beginning of the treatment. The same simple method was successfuly practiced by the author in numerous cases of angimas of various forms, and by Trütovsky in a group of cases of scarlatinal diphtheria.

A New Method of Disinfecting the Mouth and Throat.

Experimenting with colored fluids, the author found that only the soft palate and tongue came in contact with the solution used, and consequently they are without value. He recommends the use of bonbons made from saccharine and resin guaiaci, and claims that in their use the entire mucous membrane of the mouth and throat is brought into contact with the disinfectant used. Their value is proven in that the bacteriological examination of the secretion of the mouth shows it to be free from bacteria after the use of the bonbons, when they had been present before.—*Szanas in Archiv. fur Kinderheikunde. Arch of Pediatrics.*

CURRENT LITERATURE REVIEWED.

IN CHARGE OF ELLISTON J. MORRIS, M.D., AND SAMUEL M. WILSON, M.D.

THE AMERICAN JOURNAL OF OBSTETRICS.

for June. J. Clifton Edgar, M.D., of New York, contributes an interesting article on

Deep Incision of the Parturient Cervix for Rapid Delivery,

reporting three cases in which the operation was performed for eclampsia complicating delivery. The result was the saving of four children (one case of twins) and two out of the three women. Cuts and photographs are given in the article showing, in case 1 the condition of the genital organs one year after the operation, in case 2 the genital tract itself with the results of the autopsy, and in case 3 the condition of the genital organs two months after the operation and delivery. In the three cases described the situation was desperate in the extreme, and in view of this fact a procedure was made use of in each which seemed to offer the best, if not the only hope of recovery.

The author insists that the operation should only be performed when the entire supra-vaginal portion of the cervix is dilated—in other words when the defective dilatation is confined to the vaginal portion of the cervix. When, during pregnancy or labor, the supra-vaginal portion of the cervix has disappeared (being drawn up into the body of the uterus), or can be made to disappear by appropriate mechanical means, and grave danger threatens mother or child; complete dilatation can be secured in a few minutes by means of from two to six deep incisions radiating from the os to the utero-vaginal junction, and the uterus emptied in a few minutes by appropriate means. Care must be taken not to open the pouch of Douglas and the author also states that it is not necessary to or advisable to suture the incisions after the operation. Spontaneous union of the cervical incisions usually occurs. Immediately after delivery of the placenta an intra-uterine douche is given and the cavity of the uterus packed with iodoform gauze for the purpose of thorough drainage. It has been shown by those who have practiced the operation that the procedure is not associated with considerable hemorrhage and on this account the incisions need not be sutured subsequently.

The author believes that the field for the operation is limited; that the operation itself is a serious one and not lightly to be undertaken.

Charles P. Noble. M.D., Surgeon-in-Chief, Kensington Hospital for Women, Philadelphia, Pa., writes on

Celiotomy for Puerperal Septicemia and for Puerperal Inflammatory Conditions.

He says, "The present status of the subject of celitomy for puerperal septicemia and for puerperal inflammatory conditions may be summed up as follows:

Cases may be divided into two classes:

(a) Those having morbid conditions in the pelvis antedating labor, such as tumors, pus tubes, or other septic accumulations, the bruising or rupture of which during labor leads to peritonitis or septicemia. Prompt operation in these cases has given good results.

(b) Those having normal pelvic structures at the onset of labor. The infectious process may spread through the lymphatics to the peritoneum and give rise to peritonitis, cellulitis, and septicemia. It may spread by way of the Fallopian tubes to the peritoneum, setting up peritonitis. Or it may be limited to the utero-vaginal canal. Celiotomy is not indicated in lymphatic peritonitis, as the morbid process is too widespread to be reached by operation. Celiotomy has been followed by a fatal result in cases of general puerperal peritonitis. The only ground for advising operation with such a diagnosis is the possibility that this may be erroneous. The prognosis is best when celiotomy is done for localized peritonitis, when the process has become well circumscribed and the element of sepsis is eliminated; in other words, when the case has resolved itself into one of pyosalpinx, abscess of the ovary, or of pelvis abscess of puerperal origin. The prognosis is good when cases of localized peritonitis are operated upon promptly, that is, within two or three days of the beginning of the attack, or at about the end of the first week of the puerperium. Cases which have gone from bad to worse, and in which the operation is done as a last resort, usually terminate fatally. Hysterectomy is indicated for those cases in which the infection is limited to the utero-vaginal canal, when, in spite of thorough curettement of the uterus, together with copious irrigation of the utero-vaginal canal and the employment of proper systemic treatment, the infectious process increases in severity.

In dealing with the results of puerperal septicemia by operation, celiotomy affords the opportunity for satisfactory diagnosis and adequate treatment. The organs involved may be palpated or inspected, and when necessary the operation may be followed by irrigation and satisfactory drainage. The vaginal route for operation is indicated for large pus accumulations which are found late in the puerperium."

Francis Foerster, M.D., Professor of Diseases of Women to the New York Post Graduate Medical School and Hospital, etc., concludes his series of papers entitled

"Comparative Studies Microscopical Studies of the Ovary."

this article concerning the Developement of the Graafian Follicle after birth. Summing up his researches he condenses them in the following:

"The cortex of the ovary of the higher vertebrates is at the time of birth crowded with primordial ova consisting of nothing else but the vesicula and macula germinative and around the vesicula a thin layer of flat epithelia. The same I found to be the case in the ovary of a girl of 5 years old. Among the primordial ova we find small clusters of epithelia, comparatively numerous in the cat and scanty in the human ovary. These clusters I would consider as the direct product of Pflugers ducts and as the ante-stage of the primordial ova. Hence, in contradistinction to the majority of histologists, I consider the primordial ovum as the product of numerous epithelia fused together, and not as the product of single epithelium. Evidently the result of the fusion of the epithelia is an indifferent mass of protoplasm in which a differentiation into the ovum with the vesicula germinativa and a lining layer of flat epithelia takes place. The lining epithelia do not themselves grow up into cuboidal and columnar forms, but a fusion of such epithelia takes place with the result of the appearance of multinuclear protoplasmic masses. These protoplasmic bodies split up into new and perfect epithelia, cement substance intervening between the single epithelia. The living mattter of the epithelia remains interconnected by the delicate thorns traversing the cement substance. Furthermore, from either the cuboidal or columnar epithelia lining the follicle and the ovum an outgrowth of indifferent protoplasm takes place with the final result of a production of multiple layers of cuboidal epithelia. By the liqufaction of a number of cuboidal epithelia, spaces arise filled with the albuminous liquor folliculi; remaining epithelial tracts keep the ovum in situ. The so-called structureless membrane ensheathing the follicle is not a constant formation, it is not structureless, but is derived from an infiltration of a layer of emdothelia subjacent to the outer row of columnar epithelia of the follicle with an extremely dense, so-called elastic basis substance."

Robert G LeConte, M.D., Surgeon to the Methodist Episcopal Hospital, Philadelphia, etc., contributes a paper entitled

An Operation for the Restoration of the Sphincter Ani.

The author describes the operation as follows: "The surface to form the new perineum is freshened and denuded in the usual manner. The stitches to sew up the laceration in the rectum are passed from below upward, so that when tied the knots will come in the lumen of the gut. The sphincter is now well stretched until the mucous membrane at the margin of the anus breaks into little fissures. The sphincter having been stretched, the two ends are hooked from their dimple-like depression with a tenaculum and pulled into view. To be certain that the muscle is caught the sphincter is grasped below, and when traction is made with the tenaculum the muscle will be felt to move beneath the fingers. The ends of the muscle are freshened either by cutting off a small portion with the scissors or by fraying the ends well with the point of a knife. Two medium-sized catgut sutures are passed through the side of the muscle opposite to each other and tied, and the ends left long. Two similar stitches are passed on the other end of the sphincter, and the muscle is brought together by tying the long end of the sutures at one end to those of the opposite end." The rest of the operation is completed in the usual way.

Influenza Complicating the Puerperium.

is the title of a paper by R. Abrahams, M.D., Attending Physician to Mount Sinai Hospital Dispensary, New York. The paper is based on the study of sixteen cases. The following points enabled the reporter to arrive at a correct diagnosis in every instance:

The uterus in every case was normally contracted and of normal size; no tenderness or pain over it or its appendages, either by abdominal palpation or vagina examination. The lochia which in the very severe cases was somewhat suppressed, yet in all were of the normal color and odor; the os was not patulous, and tympanites was absent.

The author made it a rule to examine every paiient for some hidden source of infection, and in every case the result was negative.

The prognosis is good; the disease lasted from four to eight days. In the treatment the author relied on good nourishment and stimulents when indicated. The ice-bag, the curette, the intra-uterine douche were conspicuous by their absence.

The other papers in this issue are:

Ligature and Suture Material in Hysterectomy. By J. M. Baldy, M.D., of Philadelphia. The author evidently prefers catgut for ligatures.

Deformed Coccyx Causing Dystocia and Death of Child. Report of two cases. By Ervin Alden Tucker, M.D., Resident Physician of the Sloan Maternity Hospital, New York.

Suspension of the Retrodisplaced Uterus by the Utero-ovarian Ligaments. With a report of seventeen cases. By Reuben Peterson, M.D., Grand Rapids, Mich.

Report of a case of Postmature Labor. By Frank A. Stahl, M.D., Demonstrator of Obstetrics, Rush Medical College, Chicago. The author perfers the term "Postmature Labor" to missed labor—the one usually employed.

Papilloma and Papillomatous Cysts of the Ovary. By George C. Freehorn, M.D., Instructor in Normal Histology in Columbia College, New York.

Clinical Notes. By Barton Cooke Hirst, M.D., Philadelphia. In this paper is given the report of a most interesting case of perineal injury during labor with photographs of the condition of the vaginal outlet before and after operation.

THE ANNALS OF GYNÆCOLOGY AND PÆDIATRY.

for May. Dr. Augustin H. Goelet of New York contributes a paper on

Ectopic Pregnancy.

The author advocates the use of electricity in this disaster rather than abdomina section.

He states that when rupture occurs between the folds of the broad ligament immediate operative interference is not demanded or indicated, as it is comparatively harmless and may be left to nature, or absorption may be promoted by the use of electricity if the growth of the fœtus has been arrested at a sufficiently early period. Even where intraperitoneal rupture occurs, the records of cœliotomy show that hæmorrhage is often found to be moderate in amount and not in itself sufficient to furnish occasion for immediate surgical interference. The patient should be closely watched and if the hæmorrhage is uncontrollable, cœliotomy should be resorted to without delay. The electrical treatment is urged by the author before rupture. The author further states that "No deaths have occurred which could be attributed to the use of electricity in ectopic gestation, and no evil results have followed. On the contrary the health of the patients has been good from one to eight years afterwards. The fatal cases, four in number, have been shown to be due to other causes and in no way attributable to electricity." He more than hints that such a record cannot be shown by the advocates of abdominal surgery, and concludes that the use of electricity in unruptured tubal pregnancy, prior to three or three and a half months, is the most rational proceeding that we can adopt.

E. W. Cushing, M. D., of Boston contributes a short paper on

Hysterectomy for Cancer.

In this paper, which was read before the American Association of Obstetricians and Gynæcologists at Toronto, 1894, the author states that he prefers the ligature to the clamp in these operations and the vaginal route to the abdominal on account of the less amount of shock by the vaginal method.

In discussing the paper, Dr. J. D. Griffith, of Kansas City, referring to a fatal case reported by Dr. Cushing where the operation had been done by the abdominal method, asked Dr. Cushing if the woman had been operated on in the Trendelenberg posture. On Dr. Cushing replying that she was, Dr. Griffith went on as follows: "The reason I spoke of the Trendelenberg position was this: I have recently lost two cases in abdominal and pelvic work that I thought could not have died from anything else than from it. In a series of twenty-four consecutive cases I have lost these two. They were not as desperate to deal with as some I have had dealt with without the Trendelenberg position. I put myself in the Trendelenberg position for thirty minutes, and if any of you will try it for a short time, even without the assistance of the anæsthetic, you will find that it produces marked shock. I have found by experience that the Trendelenberg position is as exceedingly disagreeable one, and one that is not easily recovered from. I did not fully recover from it in less than two and one-half hours."

I. S. Stone M.D., of Washington D.C. discusses "Stitch Abscess" and states that he has never seen better results than can be obtained by asepsis rather than so-called chemical antisepsis. Strict cleanliness is necessary in protecting the wound.

The remaining papers in this issue are:

Benign Tumors of the Breast. By Charles Greene Cumston, B. M. S, M.D.

Injuries to the Pelvic Floor. By F. B. Dorsey, M.D.

In the Department of Pædiatry there is a paper by Harold Williams M.D. entitled "Wherein Popular Education Has Failed.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

SURGERY.

Treatment of Tuberculosis of the Joints.

Professor Rydygier, of Krakow (*Przeglad Lekarski*, No. 15, 1895), read a paper on this subject at the Seventh Congress of Polish Physicans in Lemberg, his conclusions being as follows: 1. That conservative treatment should not be looked upon as a competitor of operative treatment; on the contrary one should be complement of the other. 2. The treatment chosen in a given case should depend on the social position of the patient, his age, general state of health, local changes, and on the joint affected. 3. If there is a distinct suppuration of the joint, with inclination to spread and destroy the joint, it is necessary to operate. 4. The better the method of conservative treatment, the more we can limit the operation. 5. The best method of conservative treatment is that which permits the patient to profit by fresh air and movement such as will not expose the joint to irritation. 6. The best method of conservative treatment is that which best permits of the removal of the morbidly degenerated parts without any special regard to later action of the joint; in some cases, however, the complete removal of the joint is advisable. 7. Operations performed too late increase the statistics of conservative treatment, but are not advantageous to the patients, while too early operations only injure unnecessarily. 8. In addition to local treatment, sea-air and suitable baths are recommended as general treatment. *B. M. J.*

Surgical Treatment of Hydatid Tumors.

Rudall (*Australian Med. Journ.*,) says that much of the success which has been obtained in the surgical treatment of hydatid tumors is due to the thoroughness of evacuation and to the employment of the shortest route to the surface of the body in carrying out the evacuation. He relates the following case as illustrative of these remarks. A male patient, aged 28, suffered from a swelling in the right side of the chest, which extended upwards as far as the top of the fourth interspace. On aspiration with a fine trocar fluid was withdrawn which contained pus cells and hooklets. There were no symptoms of lung affection. The diagnosis was thought to be a hydatid tumor of the liver, which had encroached to a very considerable extent upon the thoracic cavity. There did not seem to be any likelihood of dealing with the tumor effectually by an abdominal incision, and on this account it was decided to reach it through the chest wall. After the patient had been anæsthetised an incision was made from near the right nipple downwards and outwards across the ribs, and then about 2 inches of the sixth and seventh ribs were resected. The pleura was then opened, and the lung was found to have been pushed upwards towards the apex of the chest cavity. The liver containing the tumor, and covered by the diaphragm, occupied the greater part of the chest. The diaphragmatic and costal surfaces of the pleura were sewn together with sutures of silkworm gut, and then a fine trocar was passed inwards in several directions. At first watery fluid escaped, and then it became opaque. On this account it was thought that more than one tumor existed. The diaphragm was next cut through and a large hydatid cyst opened. This contained opaque fluid and daughter cysts, some of which were filled with clear fluid. The liver substance over-lying the cyst was broken down with the finger so as to allow the escape of the contents of the cyst, and also the cyst itself, which was drawn out apparently entire. The liver tissue around the opening was stitched to the margins of the wound in the diaphragm, so as to shut off the peritoneum from the field of operation. The cavity in the liver was washed out with a weak sublimate lotion and a glass drainage tube introduced, A week after the operation there was a little bleeding from the wound, which lasted for several days, when a small piece of cyst wall was washed out. After this the wound healed. A little later two swellings formed in the right hypochondriac region, which were treated in the same way and the patient recovered completely.

Treatment of Fractured Femur by Suture.

Walther (*Rev. de Chir.*) has recently communicated to the Societe de Chirurgie of Paris the case of a man who in falling from a wagon received a severe injury to the knee. The lower end of the femur was broken into three fragments, and the tibia was displaced backwards. The internal condyle remained attached to the tibia, and had been carried backwards with the head of this bone. Walther, finding that the reduction and coaptation of the fragments of the femur would be attended with much difficulty, opened the knee by a long incision on the antero-internal aspect of the joint, placed the osseous fragments in contact and in their normal relations, and fixed them together by sutures. The patient made a good recovery. Twelve months after the operation the knee was still slightly swollen, and the injured limb a little shorter than the other, but the patella was movable, and the leg could be freely flexed and extended by the patient, who was able to walk without any difficulty, and to follow his occupation of floor-making. The result, the author holds, is certainly far superior to what would have been obtained by practicing the ordinary treatment of fracture.

NEWS AND MISCELLANY.

A Delightful Sail on the Broad Chesapeake.

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If you want to spend a pleasant Sunday, and get a new set of nerves for the following week, go to Bay Ridge Sunday, August 4th. Everything is bright, healthy and rest-inviting at this beautiful bay-side resort.

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ORIGINAL ARTICLES.

APPLICATIONS OF ELECTRICITY TO MEDICINE.

HENRY H. WIEGAND, A. B., E. E., BALTIMORE, MD.

Ever since the seventeenth century attention has been more or less directed to the action of electricity on the human body. Experimenters previous to that time, had been unable to generate electricity save in very small quantities; but about that period the electric machine was invented and, as this instrument furnished an unlimited supply of electricity, those of a philosophical turn of mind sought to learn the effects of the new "effluvium" upon all kinds of matter. The effect of the discharge upon the human body was noted with a great deal of awe and surprise. Imagination seems to have been greatly stirred by the fire which was drawn from the sulphur and glass balls that formed the machines, for, in their memoirs, we find them describing in a most vivid style the effects of the electric sparks.

Professor Van Muschenbrock, who discovered the Leyden jar, describing his discovery to his friend Professor Reaumur, in a letter dated April 20th, 1746, declared "that he would not submit to a second shock for the whole kingdom of France." "I wish to communicate to you a new but terrible experiment," he writes to Reaumur, "which I advise you not to repeat to yourself. I was making some researches in the force of electricity, and had suspended by two silk cords an iron rod, one end of which received the charge from an electrical machine; from the other end hung down a thin wire which dipped in a thin flask partly filled with water, and which I supported by my right hand while I endeavored to draw a spark from the rod by my left. Suddenly my right hand received a violent shock and my whole body was struck as if by an explosion of gunpowder. The flask although made of thin glass was not broken nor was my hand misplaced, but my arms and body were affected in a terrible manner which I cannot explain, but which I thought would make a finish of me."

M. Allamand, who repeated this experiment shortly after with a common glass tumbler, says: "The shock took my breath away and I felt such a violent pain in my arms as to fear serious consequences, but it passed over without injury to me."

Professor Winckler, of Leipzig, speaking of his experience in repeating the Leyden experiment upon himself, said that he felt strong convulsions over his whole body, his blood was brought into a most violent agitation, and a burning fever would have been the result if he had not taken cooling medicines. He felt also a heaviness in his head as if a stone laid upon it; it caused him twice to bleed at

the nose, which otherwise seldom took place. He tried the experiment on his wife on two different occasions. He says, "she was so weakened that she could not walk, and a week later, on receiving the third shock, she commenced at once to bleed at the nose."

All the early experimenters seem to have had a very high estimate of the power of electricity when accumulated in the Leyden jar to work harm to anyone receiving the charge. One philosopher, M. Boze, wished to be killed by the electric shock, "in order that the account of his scientific death might procure an article for the Memoirs of the French Academy of Sciences." His wish was not fulfilled.

The electric shock produced by the Leyden jar was the cause of so much interest that many persons travelled over Europe and made a living by administering it; some pretending to cure by it all manner of diseases. We see a relic of this in the man with the electric shocking-machine who is so often seen on the street corner, and is a regular accompaniment of the country circus.

In France, the celebrated Abbé Nollet hastened to repeat the Leyden Jar experiments, and many crowded to experience the new sensation. One day, finding that the number of persons who wished to take the shock was inconveniently great, he conceived the idea of having them join hands in the form of a ring and administering the shock to the whole company at once. This trial having been so successful, the experiment was repeated at Versailles in the presence of the king and his court. A company of about two-hundred and fifty soldiers were placed in a line, each holding the other by the hand. The Abbé placed himself at one end of the human chain, while a soldier at the other end held the charged bottle of water in his hand. As soon as Nollet plunged his finger in the water the circuit was closed and the shock was instantaneously communicated to each man in the line, much to the amusement of His Majesty and his courtiers. Subsequently Abbé Nollet killed fish and birds by means of the jar, thus indicating that the experiment might be pushed too far with human beings.

Aloysius Galvani, Professor of Anatomy at the University of Pavia, having been occupied for a long time with the study of the nervous system, was curious to see what effect would be produced upon the living organism by the "electric fluid" and experimented upon different animals with the view of determining this question.

In 1790, while engaged in this line of study, he noticed that a leg dissected from a living frog, when attached by the crural nerve to the metal part of the electrical machine, suffered contraction on being touched by the scalpel, even though the machine was not operating. Continuing his observations further, he found that whenever the metal hook attached to the nerve was touched by the scalpel resting on the muscle, the latter suddenly contracted. Galvani, being a physiologist and not a physicist, naturally sought for an explanation of the phenomena in the vital economy. He was familiar with the contractions produced by the electric spark, and attributed the phenomena just described to an electricity inherent in the animal, assuming that the electricity which he called "vital fluid" passed from the nerves to the muscles by the joining metals and was thus the cause of the contraction. This theory met with great support, especially among the physiologists, but it was not without opponents. The most important of these was Alexander Volta, Professor of Physics in Pavia, one of the foremost physicists of his age. As soon as Galvani announced his observation, he set to work to repeat the experiment. Galvani's attention had been exclusively devoted to the nerves and muscles of the frog, Volta's was directed upon the connecting metal. Resting on the discovery which Galvani had made that the contraction is more energetic when the connecting arc is composed of two metals than when there is only one, Volta attributed to the metals the active part of the phenomenon of contraction. He assumed that the disengagement of electricity was due to their contact, and that the animal parts officiated as conductors and at the same time as a very sensitive electroscope.

A memorable controversy arose between Galvani and Volta. After much further experimentation the latter was led to give greater extension to the contact theory, and propounded the theorem that, "when two heterogeneous substances are placed in contact, one of them always assumes the positive and the other the negative electrical condition." In this form Volta's

theory obtained the assent of the principal philosophers of his time. Galvani, however, made a number of highly interesting experiments with animal tissues. In some of these he obtained indications of contraction even though the substances in contact were quite homogeneous.

Though later research has shown the truth of Volta's theory, yet Galvani has not been proved to be entirely wrong, for modern investigation has proved conclusively that the muscles are the seat of an electro-motive force and may be made to produce currents of electricity. This was first discovered by Galvani, but he was not given the credit due him as, at that time, investigators did not possess instruments sufficiently delicate to prove the existence of the delicate currents produced by the muscles.

Since the time of Galvani much attention has been given to these muscle and nerve currents by Nobilli, Nattenucci, and, especially in later years, by Du Bois Reymond who also investigated the laws governing them. These investigations proved most conclusively that currents do exist in living muscles and nerves. These inherent currents are probably the cause of some of the uncertainties which at times attend the use of light currents of electricity in medicine, and, until they are more thoroughly studied and become better understood we will likely not be able to make positive statements with regard to the dosage of electricity.

A great deal of good has undoubtedly been accomplished by those skilled in the application, bnt one who is unacquainted with the fundamental laws of electricity should not think of using this method of treatment to any great extent before thoroughly familiarizing himself with the laws governing its action. Few of our medical colleges have the assurance that their graduates are well-informed on the principles of electricity or other branches of physics; and the young physician is compelled to obtain the knowledge elsewhere if he wishes to be successful in electro-therapeutics.

In operating with electricity one has to deal with three quantities which are mutually dependent upon one another. These are *electro-motive force* or potential, *resistance* and *current*. The *electro-motive* force, or as it is often called the potential, is estimated by *volts*, and is the cause by which electricity is set in motion in a voltaic circuit. The *quantity* of electricity which in any unit of time flows through a a section of the circuit, is called the strength of the current. This *strength of current* is evaluated in *amperes* and *milliamperes*, the latter being the one-thousandth part of the former. The *resistance*, as its name indicates, is a quantity depending on the amount of obstruction offered to the free passage of the current. The unit of resistance is called the *ohm*, and is the resistance offered by a column of pure mercury one hundred and six millimetres long, having a square millimetre section.

The relations existing between these quantities is expressed by "Ohm's law," which is: that the current forming in any circuit is directly proportional to the electro-motive force, and inversely proportional to the resistance; or to express this relation symbollically,

$$\text{Current (C)} = \frac{\text{Electro-motive force (E)}}{\text{Resistance (R)}}.$$

The only one of these quantities that is usually observed with any great care in medical applications is the strength of the current (C). But due regard must also be had for the other two, for the value of C, as the voltage is raised or the resistance decreased, increases accordingly. The voltage may be raised by adding more cells of battery. The resistance is dependent on the character and dimensions of the circuit. The metals, particularly copper and silver, are excellent conductors; the muscles, nerves and bones are only fair conductors; while dry skin is a very poor conductor. By increasing the length of the current path we increase the number of obstructions that the current has to overcome and thereby raise the resistance. By increasing the area of cross section of the conductor the number of paths are increased by which the current passes from one pole to another, and thus lessens the resistance. The electric current on entering a homogeneous conductor spreads out and passes in parallel lines to the neighborhood of its point of exit, where it gathers together and passes out by the pole attached at that point. When the current is caused to pass through a non-homogeneous conductor, as for example, an arm or leg of a human being, the current distributes itself more or less in the bones, muscles and nerves, according as they offer less or

more resistance. As dry skin is a poor conductor, the electrodes used in applying the current are usually faced with sponge which is kept moist, and are made of as large an area as possible, unless for some particular purpose it be desired to concentrate the excitation at one point.

Electricity may be made to manifest itself in several different ways, and in medicine these are distinguished from one another by a nomenclature peculiar to this science. Frictional or static electricity is generally called "Franklinism"; current or voltaic electricity is commonly called "Galvanism"; while induced alternate currents are spoken of as "Faradism."

Frictional electricity, or Franklinism, is produced by the friction of two dissimilar substances. Everyone is more or less familiar with electricity in this form. Examples of it are often seen in the dry winter season. In such weather if one shuffles his feet over a heavily carpeted floor and then touches any piece of metal work, such as the gas fixture, a bright spark will spring from him to the metal; on combing the hair with a rubber comb, sparks are also evident. Any substance will display evidences of electrification on being rubbed by something of a different composition, but the best materials for the generation of frictional electricity are glass and an alloy of zinc, tin and mercury. Many of the machines used to-day in generating electricity for Franklinization, consist of circular plates of glass revolved between rubbers covered with the above alloy. A new machine invented by Holtz, operating on the induction principle, is rapidly coming into use in consequence of its greater reliability in all kinds of weather.

Current electricity or Galvanism.—Whenever two metals are immersed in a liquid which acts chemically upon one of them, they are brought to different states of electrification, which is expressed by saying that one is at a higher electric potential than the other. There always exists a tendency for these different electrical states to equalize each other, and if the two metals be joined together equalization will instantaneously take place and electricity will flow from the higher potential metal to the lower through the point of connection. As long as the liquid continues to act chemically on one of the plates this condition of higher and lower potential will be maintained between the two metals, and a continuous current of electricity will flow across the connection. This will be noticed by the sense of taste. If the tongue be placed between a copper and a silver coin, no particular taste will be noticed so long as they do not touch, but so soon as their edges are brought into contact, taste is excited. This is due to a current of electricity passing through the tongue from one metal to the other. This effect is much more noticeable if a scrap of zinc be used in place of the silver coin. By employing a liquid that is capable of acting with more vigor than the saliva, a more powerful current is obtained. If a piece of zinc and one of copper be placed in a solution of sulphuric acid, and their free ends be joined by a wire, it will be noted that as the acid attacks the zinc a current commences to move along the wire. This current can manifest itself in several different ways. If the wire bearing the current be brought near a compass-needle the latter will be deflected, and if allowed to flow for a time the wire will become warmed by the action of the current on the molecules composing the wire. If the wire be cut in two and the two ends be brought together on the tip of the tongue a peculiar sensation will be felt in this organ, and an acid taste will be noticed at one wire, while the other will have a different taste difficult to describe.

For the application of galvanism in medicine a numberless variety of batteries have been devised. Many answer the purpose for which they were designed, but most of them, except the chloride-of-silver cell, are bulky and troublesome. This has contributed not a little to render electricity unpopular with the general practitioner, and has confined its use largely to the specialist.

The third grand division of medical electricity is called "Faradism," and considers the application of induced alternating currents. The production of these currents depends upon the principle discovered by Michael Faraday, that: "when a current of electricity is started flowing in one coil of wire, another current is induced in any other coil of wire which may be near the first; and that on shutting off the current from the first coil, a current opposite in direction to the previous induced current is generated in the coil that is near by." The customary instrument for producing these currents is called an induc-

tion coil, and consists of about fifty or sixty turns of covered, coarse, copper wire wound on a soft iron core. This is called the "primary" coil. Over the primary, and carefully insulated therefrom, are wound many turns of covered, fine copper wire, forming the "secondary" coil. To the primary is connected cells of a battery, the current from which is automatically made and broken many times a minute. Each time the current in the primary is made and broken, two currents, one negative the other positive, are induced in the secondary. This piece of apparatus is generally so arranged that the potentials at the terminal of the secondary may be varied through wide limits, in order that the intensity may be adapted to different cases. The old "shocking machine," or "medical battery" which was in such common use a quarter of a century ago, was a Faradic instrument and produced alternating currents of a high potential. In this machine the energy which was transformed into electricity was derived from the person who turned the crank, while in the induction coil the source of energy is in the supply of chemicals contained in the voltaic cells.

In the static form, first electricity was used for curative purposes, but for years was almost entirely supplanted after the advantages of dynamic electricity came to be better understood. At present it is being used to a somewhat greater extent, but the benefits accruing from its employment come, probably, more through the mind than the point of application. For this reason Franklinization has been used with great success in the treatment of those maladies where the imagination has been the chief source of trouble.

Dr. Rockwell, an eminent authority on electro-therapeutics, says: "Sedative and tonic effects of a very interesting character are undoubtedly obtained through franklinization, but these effects are hardly equal in variety or degree to those which follow the careful and thorough use of dynamic electricity. None the less, however, do we hail the recent revival of this neglected department of electro-therapeutics, not only because in some conditions it may possess some advantages, but because through peculiar idiosyncrasies it is sometimes better borne than the other forms. It must not be forgotten, however, as a rule general faradization is far more agreeable than treatment by sparks, however carefully given. Another important reason for the use of franklinic electricity—and one, which, to my gratification I have thoroughly tested—is its occasional value in supplementing and reinforcing the constitutional tonic effects of general faradization."

Current electricity or "galvanism" has been used to a great extent and for a variety of purposes in medicine, with practical results. A continuous current of electricity produces two distinct effects in passing through the human organism. One is an electrolytic action whereby the substances traversed by the current which are capable of decomposition by this means are broken up into their constituents. This electrolytic action has been found, when developed in a mild degree, to materially assist nutrition. Thus Professor Thacher, of Yale, found as the result of experimentally applying the current alternately to the two arms of a paralytic for the period of one week each, that at the end of every week the arm which had been galvanized during the previous seven days had improved about fifty per cent. in strength over the member which during that time had depended on nature alone.

The other action of a continuous current is a species of osmose and may be shown by immersing a glass tube, closed at the bottom with a piece of parchment and filled with fresh water, in a vessel of salt water. If the positive pole of a battery be placed in the salt water and the negative pole in the fresh, after a time it will be noted that the water in the glass tube has become salty, and that the solution has there risen to a higher level. Here the action of the current has been to mechanically carry along the salt and fluid from the positive to the negative pole. This action has been entitled electric osmose, and has been recently used to force below the skin those drugs which do not affect the cuticle and generally have to be applied hypodermically. Cocaine has thus been successfully injected below the epidermis by moistening the positive sponge with cocaine and applying to the surface that one desired to anesthetize. This method of treatment has been used with satisfactory results to quiet the pain of neuralgia. At one time it was thought that this would afford an excellent way of administering all medicines which could

be reduced to solutions. Many tried "medicated electric baths," but the impossibility of regulating the quantity absorbed by the patient prevented their use to any great extent.

The galvanic current has been used to a great extent by all specialists in this department of medicine, and with very satisfactory results. A decided difference of opinion exists as regards the methods of application, all, however, agree that no success can be attained with galvanism without the aid of the galvanometer. This instrument tells just how much current is flowing between the electrodes. This is important to know, as without its aid one may be readily deceived, for the same number of cells and equal pole surface on the same subject may give quite different readings on two succeeding days, due to the changed condition of the person on whom the current is operating.

After the electrodes are in place the current may be increased or decreased by altering the number of voltage. This is accomplished by increasing or decreasing the number of cells in the circuit. This method would be illy suited to many cases, as it lacks delicacy of regulation. A better plan is to regulate the current with a rheostat. This instrument contains a resistance which can be varied from small to infinite dimensions, and is designed to be placed in the circuit with the batteries and the body operated upon. In using the rheostat the regulating handle is placed at the infinite point, and after the electrodes have been put in position the batteries are connected with the circuit and the resistance is diminished until the desired current is flowing at a strength which may be maintained by slight movements of the handle. Another advantage gained by the use of the rheostat is that the patient need suffer no shock on the making and breaking of the circuit, as the current can be gradually reduced from the highest to an infinitely small value before the circuit is broken.

The "Faradic," or as it is sometimes called the "induced" current, consists of a rapid succession of electrical impulses alternately moving in opposite directions, and is known as an "alternating current." As electricity moves with practically infinite velocity, each impulse (a current) passes from one pole of the apparatus through the circuit to the other pole before another current, opposite in direction, can start from the latter pole around the circuit. Thus we have travelling in the circuit a succession of currents which are opposite in direction, the one being positive the other negative. A similar result would be obtained if the terminals of a voltaic cell were led to a commutator or pole changer. In operating the latter each end of the battery would be alternately connected with the two ends of the circuit and thus send currents around the circuit which would be alternately positive and negative in direction of movement. In order to produce an alternating current with the apparatus just described equal to that generated by an ordinary induction coil it would be necessary to employ many cells of battery and a very rapidly moving commutator. This would make a clumsy and cumbersome arrangement and is never employed when the compact induction coil is available. The faradic current, consisting as it does of currents whose direction is changed many times a second, cannot produce the electrolytic or osmotic effects which we noticed in connection with the voltaic current. For whatever decompositions or changes might be made by an electrical impulse at one instant, would be destroyed the next by the succeeding impulse which moves in the opposite direction. It is supposed that the faradic current obtains its therapeutical value from the sudden reversals of the current, which, stimulating the nerves, causes them to throw the muscles into action.

For the purpose of applying the faradic current, as well as for the other varieties, electrodes of many shapes and sizes for particular applications have been devised, but the most generally useful is the hand. Professor Rockwell says: "The hand is the natural electrode, and those who are able to bear the requisite strength of current through their own persons and are willing to subject themselves to the fatigue which follows its frequent use in this way, will find it unrivalled by any other form of electrode. It is not absolutely necessary that the hand be used, but it can be readily understood that no artificial electrode that human skill can devise can equal the hand in its flexibility, and the readiness and completeness of its adaptation to every inequality of surface. In all applications to the head, eyes, and face,

and in more general treatment of acutely susceptible and hysterical women, one will fail in numberless ways to obtain the same results by any form of artificial electrode. Ordinarily, however, when the applications are made along the course of the spine and over the abdomen and lower limbs, the strength of the current necessary is too powerful to be passed through the arms of any operator and, fortunately, artificial electrodes answer here as good a purpose as the hand."

The discomfort and inconvenience arising from the customary method of using the hand as an electrode may be avoided by employing the contrivance devised by the author for this purpose. Attached to the wrist of the hand is a flexible metallic bracelet, lined on the side in contact with the flesh of the operator with sponge or other bibulous material. Attached to the bracelet is a flexible rubber-covered wire by which the current is brought from the induction coil. In order that perfect freedom of movement of the hand may be maintained, the insulated wire is carried along the arm to the shoulder where it is fastened to the clothing and is thence led to the induction coil. The current arriving by the wire passes into the hand by the wrist and thus much annoyance arising from the faradization of a large part of the body of the operator is avoided, and the ill effects which are sure to follow such a practice are limited to the hand. As the two hands may be used alternately the ill effects will be minimized.

In all the preceding applications of electricity the current has passed directly into the body or some portion of it, but there is another class of applications in which the electricity is indirectly used, being first transformed into some other form of energy, as light, heat, sound or mechanism. Prominent in this class is the "Galvano-cautery," in which instrument a strong current from a storage battery, a small dynamo, or a powerful galvanic battery, is led by stout copper wires to the terminals of a short platinum wire which is thereby maintained at a white heat. On touching muscle or membrane with this glowing wire it is immediately cauterized.

The electric light is now being used to a considerable extent for making an optical examination of many of the cavities of the body, such as the stomach, bladder, vagina and the rectum. A specially designed instrument is required for each of these organs, but in general they consist of a thin metallic tube at the end of which is a small incandescent light for illumination, and a small prism to reflect the wall of the illuminated cavity down the tube to the eye of the observer. The wires which feed the lamp are often carried down the inside of the tube, the interior of which is coated with lampblack to avoid reflections. In one of these instruments which was designed for protracted examinations the visual tube was paralelled by two others; one for the electric wires, the other for a stream of water to regulate the heat generated by the wires and lamp. A great deal of ingenuity has been expended on this class of instruments, and they have greatly aided the specialist in obtaining an idea of the internal appearance of many of the organs in health and in the various stages of disease, but to obtain satisfactory results from their use requires considerable skill, practice and patience.

The electric motor is being used more and more. Surgeons and dentists have found the small hand motor armed with a rapidly operated saw or drill, extremely useful for many delicate operations which by the ordinary methods require the exercise of considerable manual labor. With the aid of the electric motor the operator is relieved of all labor and can concentrate his whole attention on the action of the tool. The work being performed with extreme rapidity the patient is relieved from prolonged distress. Very often when hard work has to be performed it will be found advantageous to employ the motor, and allow the current to supply the energy necessary. The "electric plugger" has been made to do excellent work in the hands of the skillful dentist. A similar instrument has been used for massaging small surfaces.

An electrical instrument which possesses great capabilities is the microphone. When used in connection with a cell of battery and a telephone, it renders audible extremely faint sounds arising from the action of different portions of the human mechanism. The sounds produced by the action of the lungs and heart are heard much magnified in the telephone and the sound produced by the contraction of a muscle is also made audible.

The graphophone has been used for recording and comparing coughs peculiar to different troubles.

The electric probe or explorer was invented for discovering bullets or other foreign metallic substances which might become embedded in the body. These instruments have been devised on two or three different principles. One consists of a pair of wires firmly fastened together but insulated from each other, with the terminals, which are inserted in the wound, slightly separated from one another. When these terminals come in contact with any metallic substance the circuit is closed and a bell is rung by a battery which is also in the circuit. Another piece of apparatus for discovering the position of bullets is based on the principle of the Hughes induction balance. This instrument has not been much used, as one of its first applications was in the case of the late President Garfield, where a stupid blunder caused the instrument to give erroneous results. In order that correct results may be obtained with the induction balance, the patient must be removed from the neighborhood of all metallic substances, as bed-springs, etc., materially interfere with useful results. Under proper conditions it can be relied upon, and when this becomes better understood no doubt it will receive wider application.

The great draw-back to the use of electricity by the general practitioner has been the trouble and annoyance of keeping the batteries always in order when the need for their use may be only occasional. No doubt this will be avoided in the near future, as now but few towns are without the incandescent light service, and this most satisfactory illuminant is rapidly replacing gas and other illuminants in residences everywhere. With the incandescent electric current, (either continuous or alternating) it will be a simple and not very expensive matter to replace the cumbersome batteries with a motor-generator designed to furnish the different kinds of current which may be needed by the physician. Such an arrangement would possess the advantage of being ever ready without requiring any previous attention on the part of the physician or his assistants, as the companies furnishing the incandescent light maintain a constant pressure in their mains during the whole twenty-four hours. Its safety is without question, for the wires on the motor-generator bearing the street current would be entirely separate and thoroughly insulated from those carrying the current furnished by the machine for medicinal purposes.

When such motor-generators are placed on the market at reasonable prices, and their capabilities are understood by the profession, we shall find electro-therapeutics much more widely practiced and more highly prized than it is even at this present time.

SPINAL SYMPTOMS IN RELATION WITH HYSTERIA.*†

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If diseases, like crimes, were amenable to the laws, the victims of the disease in question would long since have crowded our reformatory institutions, for this disease represents the most dangerous and accurate of all counterfeits. So clever is the imitation, so innocent the mien of the individual who presents this false picture, that great skill is oftentimes required in the detection; and it is not strange that men of experience and learning should occasionally fail in their judgment and accept the spurious representation as genuine coin.

Despite the apparent irregularity and

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† This paper is based largely upon the admirable article on hysteria in Charcot and Bouchard's "Traite de Medecine," Vol. v.

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diversity of its symptoms, so that hysteria has been spoken of as possessing the forms of Proteus and the hues of the chameleon, the manifestations of this disordered mental state are governed by fixed laws, and possess certain characteristics, peculiar to themselves, which always serve for identification.

It is one of the great triumphs of clinical medicine in our day and generation that the recognition of this neurosis, whose limits are as yet ill-defined, as a disordered mental state should have become general belief; and it is to Charcot that we are principally indebted for this acquisition. The old idea of the intimate association of this disease with uterine disturbance, from which, indeed, the malady received its name, is no longer current. It is true that the great Sydenham had taught that the uterus was by no means an essential factor in the development of hysterical symptoms, for he described hysteria in the male, and showed that many cases in women were wholly independent of organic lesion in the pelvis; but his teachings were not sufficient to change the prevalent opinion that hysteria was especially a disease of the female sex, and in some manner always more or less intimately connected with the organs of generation.

It is to-day scarcely proper to speak of hysteria as a neurosis. It is true that there is no anatomical basis for classifying it with organic disorders, that it must be regarded as functional, but we should substitute for the word neurosis another which more accurately fits the case, and should speak of hysteria as a psychosis. It is to Charcot, again, that we owe our knowledge of the dominant influence of some fixed idea in producing many of the gravest symptoms, as certain forms of paralysis coming on after injuries, contractions, hyperesthesia, anorexia, loss of speech, etc. This fixed idea, once firmly established in the mind, becomes so powerful that it cannot be controlled, and finally realizes those objective symptoms of which it was, in the first instance, but a mental picture.

It is not within the scope of this paper to trace the influence of either the predisposing or exciting causes, such as, in the former category, the influence of age, sex, heredity, and, in the latter, of mental or physical shock, of the infectious or other acute diseases, of various forms of intoxication. There is this to be said, however, in regard to the development of hysteria as a result of traumatism, that, in these cases, there is usually a greater mental shock than physical injury inflicted. The injury itself only determines the point of localization at which the hysterical manifestations show themselves later in the patient's history. It is the fright or terror accompanying the physical violence, often insignificant in degree, which leaves a certain disturbance in the mind of the patient, an emotional state, that ultimately leads to the appearance of objective symptoms, projected towards the periphery from this central disturbance.

Lastly, I may allude merely to a fact well known to all, the influence of imitation in the development of symptoms in those who are from any cause predisposed to hysteria.

The consideration of the clinical picture of hysteria whatever form may be assumed by the symptoms offers for our study two classes of phenomena, one being stable, permanent, often existing without the knowledge of the patient, the other more irregular, often intermittent, though lasting a long time, generally more conspicuous than the indications of the first class. The former are the more important for our study, inasmuch as it is by their recognition that the true nature of the malady is revealed; they constitute the evidence in the case, and usually last as long as the altered mental state continues; the incidents of of the second class are not essential to the clinical picture, often are entirely wanting, and, when present, are frequently determined by some accidental condition wholly independent of the causes of the original attack.

The fundamental troubles, the stigmata, are of three classes—sensory, motor and psychical.

The sensory are again subdivided into anesthesia, hyperesthesia, and dysesthesia. First in importance, and most striking of all, are the anesthesias. Their presence had long been recognized, though their nature was not understood. Many a poor hysterical patient has doubtless suffered the death penalty on the charge of sorcery, or has served as evidence against those accused of this offense, because of the loss of cutaneous sensibility, as evidenced by imperfect response to pricking, burning or tearing of the skin. The name stigmata

is derived from this period, for the anesthetic areas were called the marks of the devil, *stigmata diaboli*. Hysterical anesthesia may extend to sensations of every kind. It may be partial or complete. It may affect only one variety of common or special sensibility, or several of these simultaneously. It may be superficial or deep, and may involve either the skin or mucous membrane or both. Sensibility may be only diminished or completely abolished. It may happen, though such cases must be of the greatest rarity, that there are no disturbances in any of the forms of sensation. So unusual is this occurrance, that the perfect preservation of the sensory function is in itself enough either to cast a doubt upon the diagnosis, or to raise a suspicion as to proper care in the investigation of the case.

Anesthesia of the skin may appear in the most varied forms. There may be perfect perception of contact, yet no response to painful impression, to pricking, pinching or burning, to heat or cold, or to electrical stimulation; or each of these in turn may be retained with loss of any or all the others, though it will rarely happen that the sense of contact is alone abolished. Failure to respond to painful impressions is known as analgesia, mere diminution without loss of sensibility is called hypesthesia, the total abolition of sensibility is known as anesthesia.

Loss of deep sensibility, affecting the muscles, bones, articular surfaces and glandular organs, is by no means uncommon. It is in such cases that we find it possible to traverse with long needles the entire thickness of a limb, or of the hand, to give abnormal and strained positions to the joints, to subject such sensitive organs as the testicles to great pressure, without eliciting any manifestation of pain.

Among the most interesting of sensory disturbances is the loss of the muscular sense. This can be placed in evidence in one of many ways. In the first place, unusual strain upon the muscles, as when a limb is maintained in a trying position for an unusual length of time, gives rise to no sensation or manifestation of fatigue. Positions, which under ordinary circumstances could only be assumed by trained athletes, and then only for a short time, are maintained almost for an indefinite period, because of the impairment of the muscular sense. Another method of testing for this sensibility is by asking the individual to lift simultaneously in the two hands, let us say, objects of unequal weight. Now, the healthy individual, before making such an effort, gauges by means of his muscular sense, the degree of resistance to be overcome in the act of lifting, and proportions the muscular effort in accordance with his judgment. Where the muscular sense is absent, the effort is likely to be in no way adjusted to the work in hand, so that it is either excessive or inadequate, and is more than likely to be made with the same force upon the two sides, so that the lighter weight is often raised with great velocity. A third test of the muscular sense, in so far as it relates to position, is made by having the patient close his eyes, giving to the arm or leg of one side a certain position, and then requesting him, with the eyes still closed, to give to the corresponding member of the opposite side, a similar position. The effort usually results in failure, where the muscular sense is defective.

There may be absolute or partial insensibility of all mucous surfaces. As related to the spinal cord, I mention only the mucous membrane of the vagina and vulva, of the urethra, and of the anus and rectum.

Now it will happen in but the fewest cases, that there is general anesthesia, *i.e.*, over the entire cutaneous surface; more commonly it is one lateral half of the body; or what seem to be irregularly disseminated islands of anesthesia in the midst of a perfectly healthy skin. Sometimes these latter assume the form of bands or bracelets, or geometrical figures, whose boundaries for the most part are perpendicular to the axis of the limb; the peculiarity of this distribution is, however, always such that it cannot be explained by anatomical distribution of any nerve or set of nerves, or by any central lesion, a symptom so noteworthy that it alone suffices for the diagnosis of hysterical anesthesia. Hemi-anesthesia, which is very common, is oftentimes more difficult of diagnosis. According to the French authors, the left side suffers more frequently than the right. It may or may not be accompanied by anesthesia of the mucous membranes on the same side. Occasionally there is failure of the special senses on the same or on the opposite side. Where

it is the opposite side, a central cause can, of course, be excluded, and the hysterical origin of the trouble is clear.

One of the most important landmarks in the recognition of all hysterical anesthesias is the preservation of the deep reflexes. The patellar reflex, the ankle reflex, the cremasteric, the abdominal, the respiratory reflex, following the application of cold to the skin, are all maintained. The same is true of the pupillary reflex to light, to accommodation, and that reflex dilatation of the pupil, which can always be noted when any sensory surface is subjected to pain. Even where the painful impression is made upon the area of hysterical anesthesia, this reflex dilatation of the pupil will occur if the irritation be of sufficient intensity.[1]

A second fact, well known to clinicians, is the inconstancy of localization of hysterical anesthesia. The area may shift from one side of the body to a corresponding area upon the opposite side, either with or without the assistance of magnets and other appliances, the so-called phenomenon of transfer. Violent emotions, injuries of any kind, the momentary effect of remedies of various kinds may all cause a temporary restoration of sensibility in areas previously anesthetic; the same phenomenon may occur during sleep, or when the attention is profoundly engaged upon some subject outside of the patient's personal condition, or in the hypnotic trance or state of somnambulism.

A curious and important fact in relation to hysterical anesthesia is that it often exists without the patients knowledge. Patients will very often rest under the suspicion of simulation. Many features in connection with the cases will strongly suggest malingering; yet the anesthesia in these cases is real though it does not seem to cause the patient any annoyance, mainly because he is ignorant of its existence.

The most explicit and interesting theory of the causation of the anesthesia has been given by Janet. According to this author hysterical anesthesia is a species of distraction. He compares the central perceptive area for sensations to the sensory expansion in the retina, and draws a parallel between visual perceptions and those of general sensibility in this way; that, inasmuch as there may be limitation of the visual field, so there may be, in cases of hysterical anesthesia, limitation of the field of consciousness. The individual has lost the power of receiving more than a limited number of impressions from certain parts of the surface.

Now, no individual is capable, even in health, of assimilating, if this word may be employed, all of those elementary sensations, such as those of sight, hearing, touch, taste, muscular sense, etc., which he is constantly receiving, because the attention is always engaged in prepondering degree with one or the other variety, so that the remaining sensations, which are real, though not accurately perceived, remain in a state of sub-consciousness, and are neglected.

The largest number that can be simultaneously recognized as distant impressions may be said to represent the field of consciousness of the individual. Now, according to Janet, where the field of consciousness is limited, so that the number of elementary sensations perceived as such is below the normal, it will ultimately happen that those sensations which are least perceived become lost altogether, just as an individual with eyes of unequal strength will gradually learn to neglect the sight of the impaired globe, and will use for fixation and for accurate vision the stronger eye. The difficulty in cases of hysterical anesthesia is not in the anesthetic area; it is in the weakened perceptive power, which, because of its own insufficiency, can no longer accommodate or find room for or assimilate more than a limited number of impressions, to the exclusion of others. The merit of this theory is that it places the responsibility where it should justly belong, on the central organ of perception, though the symptoms are entirely peripheral, and makes the mental state responsible for the causation of a condition that might at first sight seem to rest upon some fault either in the reception or transmission of impressions. This theory is, however, inadequate in that it will not explain the loss of electrical sensibility, nor why the anesthesia should affect one lateral half of the body with such frequency.

In place of anesthesia we may have in hysteria hyperesthesia or what is known as paraesthesia. Now, it is certainly true

1 The reflexes which may be abolished are the response to tickling the soles of the feet, the palpebral reflex which causes closure of the eyes when the conjunctiva or cornea is touched, and the reflex that causes vomiting when the palate or fauces are tickled.

that hysterical patients may, like others, suffer from occasional neuralgias, depending upon causes identical with those which occasion these painful attacks in other persons. It may even be that such neuralgias become more marked at the menstrual epoch; this in no wise implies any hysterical origin. The true hysterical hyperesthesias are those which can hardly be traced to neuralgia or other causes of pain; they are, for the most part, exaltations of sensibility developed under the influence of some controlling thought or fixed idea. There is no better example of this condition than the affection which has received undue clinical importance under the heading of railway spine.

Unlike the hysterical anesthesia, the hyperesthesia is not limited to one lateral half of the body, nor does it encroach upon so large an area of the cutaneous surface. It is most likely to occupy some prominent part of the body that may have been exposed to injury, or that is so situated as to make it more liable to traumatism. The vertex of the skull, the occipital protuberance, the spinal processes, the elbow or knee-joints, the nipple or the mammary gland are favorite situations.

The hysterical character of the painful sensibility can readily be determined by engaging the patient's attention and then making palpation or pressure, or even resorting to more forcible irritation. With mental concentration upon some other subject it will frequently be found that the sensibility in the affected part is in reality lower than in the surrounding healthy portions of the skin. Let the patient but know that the examination is being made, and there is immediate alarm and great pain.

The hyperesthesia may involve not only the skin, but the deep-seated parts or glandular organs, such as the testes, ovaries, etc., and then it will happen that pressure over the painful area induces a spasm or hysterical crisis.

Motor phenomena show modifications similar to those which we find in the sensory sphere. The changes here are all in the direction of diminished activity. Voluntary movements are slowed, are performed with less energy, and lack the precision habitual to them in healthy subjects.

Perhaps the most striking of motor phenomena is the tendency to contraction shown by many of the voluntary muscles, a sort of increased irritability not unlike the tendency to spasmodic contraction and excessive reflex movements seen in organic disease of the spinal cord. This has been termed the diathesis of contraction.

Hysterical patients suffer from a curious form of ataxia, dependent upon their inability to receive more than a limited number of impressions simultaneously through the muscular sense; so that movements of any complexity can only be performed with the aid and controlling influence of the eyes, or with the guiding sensation of touch. The distinguishing feature of such ataxic movements is that they present the abnormal alteration only when a conscious effort is made to accomplish some particular object; in movements that have become automatic there is no lack of precision. When the aid of vision is required, it may be that sight will only be necessary to commence the desired movement, which, when once begun, continues without further control.

The diathesis of contractions, to which allusion has been made, shows itself by a tendency to spasmodic contractions upon very slight superficial irritation. This tendency may exist in weakened muscles; may be localized; have a general distribution; may be accompanied by exaggerated reflexes, or by a slight modification of electrical excitability. It can be developed by sudden movements of extension or contraction, by rubbing, by a breath of air blowing upon the surface, by encircling the limb by a constricting band. Like the anesthesia of the limb, it readily disappears under the influence of suggestion, somnambulism, and often during sleep.

Aside from the so-called hysterical attacks, nothing in connection with the disease is more striking than the more or less lasting paralyses and contractions. The patient recognizes the paralytic condition, while the anesthesia may escape his attention until discovered in the medical examination. Momentary conditions of paralysis or contraction may precede the hysterical attack; they are of comparatively little consequence. Paralyses or contractions which follow the attacks are apt to be more lasting, and require very prompt attention. They occur most commonly after injuries of some sort, and the amount of damage inflicted bears no re-

lation whatever to the extent or degree of the succeeding contraction or paralysis. An appreciable interval frequently occurs between the receipt of the injury and the appearance of these symptoms, an interval in which the mind becomes more and more occupied with the idea of the injury which has been done, and of the consequent helplessness likely to supervene.

Infectious diseases are sometimes followed by hysterical contractions or paralyses, the weakened physical condition being the first element in suggesting to the patient the probability of a more permanent loss of power.

Hysterical paralyses are rarely accompanied by any trophic lesions. There is no tendency to atrophy of the affected muscles, none to edema of the limb. The reflexes are not impaired; if any change is noted it is usually in the direction of exaggeration. They are in nearly every instance accompanied by disturbances of sensibility, anesthesia, or it may be hyperesthesia. They are rarely complete, in the sense that if it be hemiplegia or paraplegia which affects the individual, or if one extremity alone suffers, there is always some particular movement, or set of movements, some muscles or group of muscles, not disturbed by the apparent loss of power in other parts in the vicinity.

These paralyses are of varying duration, and show a marked tendency to reappear. The loss of power may alternate with periods of tonic contraction. Both the paralyses and the contractions may come on suddenly or slowly. The disappearance may be equally abrupt or be gradually accomplished by the treatment. In all cases the electrical reactions remain unchanged. In cases of hysterical contraction there is very marked resistance to every effort to straighten the contracted members. Indeed, it would almost seem, at times, that while under examination the rigidity increases. In contractions due to organic lesions the rigidity is not so marked, nor is the resistance to passive motion such as to interfere wholly with the manipulation. Contraction from spinal disease occurs for the most part from conditions in which the reflexes are exaggerated.

Painful conditions about the joints give rise to great perplexity in diagnosis, and may lead to marked contraction of the muscles around the articulation. There may be shortening, adduction and partial flexion, with complete immobility when the hip-joint is affected, so that the diagnosis from coxitis is by no means easy, not even when the patient has been anesthetized. The patient may be able to walk with the aid of a cane; in severe cases he is confined to his bed. In hysterical joint affections there is always an area of hyperesthesia extending for some distance beyond the joint; the joint is not in itself sensitive to pressure, so that the trochanter or knee will bear considerable force without any indication of suffering.

A singular manifestation of incomplete paralysis is furnished by that curious condition, known as astasia abasia. It is characterized by partial or complete loss of power in those muscles whose co-ordination is necessary for walking or standing; but the loss of power shows itself only in the effort to accomplish one of these movements. In any other position, as when reclining or seated, the affected muscles show themselves possessed of normal power, and obey readily all the impulses of the will. A patient may be able to run, but unable to walk or stand. Nothing could, perhaps, more clearly illustrate the predominant cerebral influence than such an association of symptoms.

Lastly, I may be permitted to allude briefly to trophic disturbances in hysteria. The possible association of the two has only been recognized in recent times. Most of these troubles take the form of cutaneous disorders. There may be pemphigus, vesicular erythema, gangrene of the skin, hemorrhage, either in the form of ecchymosis or bloody sweating; local asphyxia, or edema, either white or bluish.

The long continuance of a hysterical contraction sometimes leads to contraction of the tendons or to atrophy of muscles, limited to the limb which is the seat of the hysterical paralysis or contraction. The atrophied muscle, whether the diminution in volume has taken place slowly or rapidly, will show the normal reaction as to reflexes and to electrical tests.

These are the more important symptoms that may be, at times, thought to be in relation with spinal disease. I have not in any way entered upon their treatment, for that would involve the consideration of the whole subject of the management of hysteria. Success will be most generally found by strict adherence to the old Latin motto—*Suaviter in modo, fortiter in re.*

THE RELATION OF UTERINE DISEASES TO FUNCTIONAL AND ORGANIC OCULAR DISEASES*

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So potent is the influence of the uterus on the eye that its appendages, lids and muscles, lachrymal gland and nasal duct; its tunics, external and internal; cornea and sclerotic, retina and choroid, and its media, are said to be either functionally or organically, primarily or secondarily, affected by it. A study of these different diseases in their various and varied phases would cover a vast territory of interesting investigation. So closely are they sometimes linked that the delicate and subtle influence of the one on the other might easily escape detection. We are often baffled in our efforts to cure or relieve a disease because we do not look far enough for its remoter causes. It is certainly our duty, then, to take in all the possible and probable causes of disease, thereby adding much to the comfort of our clients as well as to our personal satisfaction.

It hardly seems reasonable that an organ so remote from the uterus as the eye should be so influenced by it, and yet there is a mass of clinical observation, made by competent observers, which shows an unquestionable connection between the two. Shall we call all these affections reflex? It would be hard to prove it. The question of the causes of optic neuritis and papillitis, for instance, is still being discussed, and many theories have been advanced. Its cause is not yet definitely settled. We have optic neuritis and papillitis in connection with uterine disease, but I shall not worry you with a discussion of the various theories, but review the question from a practical standpoint.

The menstrual function is of such great importance to the health of the woman that we may with great profit study its influence in normal as well as abnormal conditions. It seems hardly reasonable that normal healthy menstruation should disturb the eye, and yet it is true. Among these affections is a conjunctivitis, which is transient and subsides after the period has passed. It is not severe, reaches its climax after the flow is fully set in, and quietly subsides. Styes are also occasionally severe at this time. Cases of blepharitis marginalis are aggravated, and little pustules appear on the margin of the lids around the hair follicles, and the edges of the lids present a swollen and red appearance. Cohn saw one case in which there was each month a marked protrusion of the eyes, swelling of the thyroid gland and palpitation of the heart, all of which disappeared after menstruation ceased.

Contraction of the field of vision, with defective color preception, is not infrequently seen, and on this point careful observations have been made. These defects, however, do not interfere with central vision, which remains intact. The contraction begins two or three days before the catamenia, and continues until they cease. Herpes of the cornea have been observed, but they are of short duration. Asthenopia not infrequently occurs, especially in those who have some error of refraction. At this time reading is painful, and followed by headache or browache, or the glasses which at other times are comfortable enough do not now answer the purpose.

Dr. Geo. E. Jones reports a case of a young girl, aged fifteen years, in comparatively good health, who during a short time before the menstrual flow would be troubled with strabismus convergens, which would last until the flow was well established, then the recti muscles would be relaxed, leaving an aching sensation for some time. He says further: "I am never surprised at any symptom or symptoms that may be connected directly or indirectly between the organs of the pelvis and any distant portions of the body. We are constantly on the alert watching for them. In fact, it is an impossibility for the uterus and its appendages to be affected or diseased to any extent without

*Read before the Obstetrical Society of Cincinnati, January, 1895.

the sympathetic nerve making it known to a portion, if not the whole system."

I have frequently observed that previous to the development of the menstrual function in girls from twelve to fourteen years of age that the asthenopic symptoms are very much aggravated. With the error of refraction carefully corrected, the eyes are not comfortable, nor can they be used without the glasses. Tonics and rest do not relieve them. In these I have observed a sharply defined line between discomfort and comfort as soon as the function was established. This is a point for teachers, mothers and guardians to know and consider. But in the rush which pervades teaching, as well as everything else, no allowance is made for this critical period.

M. Dor reports a case of "a girl in whom the catamenia had not yet appeared, but who had hemorrhages in each vitreous, the blood disappearing and reappearing at intervals. When menstruation at length supervened with regularity the hemorrhage and amblyopia which universally accompanied them disappeared and did not return."

Hysterical photophobia occurs not infrequently. It is characterized by symptoms which would indicate a very serious disease if we could believe the statements of the patient. There is usually a history of long confinement to the house on account of intense pain, which even one ray of light would produce. The patient finally comes with her head bundled up with numerous thicknesses of veils and wrappings of various kinds. She refuses at first to have the eyes inspected, but gradually yields if her mind is distracted by conversation concerning some topic entirely foreign to her affliction. One by one the wraps are removed, and little by little the light is let into the room, until finally she opens her eyes and finds, much to her surprise, that she can still see. Such cases have to be treated with great circumspection until you have gained the confidence of your client, and then the way to recovery is clear. Behind the photobia there is sometimes an error of refraction, which should be corrected. Anemia and constipation, together with dysmenorrhea or amenorrhea, are associated with these cases. Such symptoms as are described above occur, in my observation, more frequently in maiden women of uncertain age. The eyes, when an examination can be effected, are found normal and healthy, but the relief which they experience is none the less grateful on this account.

In October, 1893, I read a paper before the Academy of Medicine in which I described a case of hysterical photophobia in a young girl. It followed a very protracted case of keratitis, and she came to me supposing she had a return of her old trouble. I found, however, that the cornea was clear and free from inflammation. I resorted here to a radical measure, that of introducing an eye speculum between the lids, which would cause sharp pain. Two treatments relieved her completely. She had dysmenorrhea.

Gowers, in "Diseases of the Nervous System," speaking of retinal hyperesthesia, says: "Apart from occular diseases, it occurs in weak states of the nervous system, especially in women, and sometimes in association with symptoms of hysteria." these cases it is called retinal hyperesthesia, but it is not certain that the morbid disease is in the retina. The symptom was once thought to indicate inflammation of the retina, but in most of the cases the deeper parts of the eye are normal, and actual retinitis, strange to say, may cause no intolerance, nor does this ever result from simple neuritis.

Allied to hysterical photophobia is hysterical amblyopia. To the patient and her friends it is an alarming condition. It comes on suddenly and involves one and sometimes both eyes. The blindness is sometimes absolute, but again there is perception of light. The pupil is usually normal and responsive to light, and this is a valuable symptom to distinguish it from amaurosis. The ophthalmoscope reveals no alterations of the fundus. This disease occurs more frequently among young ladies who are still at school. They are often anemic and have some uterine disturbance. I have seen it where there was a suppression of menstruation from taking cold. It occurs among young ladies at boarding schools who overwork themselves and do not take enough out-door exercise. Insomnia and errors of digestion and assimilation are associated with it.

I have already reported two cases of hysterical amblyopia affecting one eye which disappeared while I was making a test of the refraction of the good eye. I sup-

posed the eyes to be amblyopic from disease, as such instances come frequently under observation. Greatly to my surprise, I found the eyes, which when the test began had only a vision 0.05, to have perfect vision.

With the anomalies of menstruation comes a long list of functional and organic diseases, in which you have all had more or less experience. Dysmenorrhea, amenorrhea and menorrhagia have peculiar ocular symptoms associated with them. So do anteflexions and retroflexions, as well as imperfect developments of the womb. With dysmenorrhea we see blepharitis ciliaris, eczema of the lids, acute transient conjunctivitis, phlyctenular conjunctivitis and keratitis. Hasner reports a case of paralysis of the oculo-motorius. There was complete paralysis of the third pair, with paralysis of accommodation, drooping of the upper lid, and dilatation of the pupil. In two or three days these symptoms all passed off. Charcot reports a case of dysmenorrhea with hysteria, where the young woman saw on the floor and wall rats, mice and cats, and fantastic animals; and another one saw mice and spiders and black stripes on the wall.

I have now under observation a young lady of twenty who suffers from painful menstruation, and has done so ever since she began to menstruate. She is unwell every three weeks; the period usually lasts a week, and she is compelled to remain in bed a day or two each time. During the last period before coming to see me she noticed a sudden failure of her right eye. I found a chorio-retinitis, involving the macula region, which caused a dense central scotoma. There was an exudation in the upper and inner field which extended over the optic disc. The entire disc was hazy, and the lower edge swollen. This amblyopia came on during the menstrual flow, and after reading for some time. I cannot tell yet what the outcome will be, but the probabilities are that if the uterine function was restored to its normal condition her eye would recover.

The sudden suppression of menstruation causes some remarkably interesting eye complications. Samelson reports a case of a young woman of twenty-one who, while working with bare feet in cold water, suffered from a suppression of menstruation. It was followed by a sensation of pressure behind the eyes. The next day there was some obscuration of vision, and in five days she was totally blind. She complained of pain in the eyes and the orbit. The ophthalmoscope showed only a slight haziness around the optic papillæ and some engorgement of the veins. She was put on active antiphlogistic treatment, and in eleven days recovered her vision again.

Coursserant details particulars of a case of which I will offer a synopsis. A woman of thirty-six, who had always been regular, was caught in a rain and returned home chilled. She had headache, nausea, vomiting and pain in her muscles. Two days later she discovered she was blind in her right eye. There was a central scotoma, and she could not see a candle fifty centimetres distant. There was a hemorrhage in the region of the macula. Two months later the hemorrhage had cleared up, but there were fine, dust-like particles in the vitreous, and five months later there was complete restoration of vision.

Galezowski reports a case of sudden suppression of menstruation from strong mental emotion in a woman twenty years of age. There was a retinal exudation covering the principal vessels and a defect in the upper field of vision.

Morren says: "It must be conceded that the sudden cessation of the physiological functions of the uterus causes a venous hyperemia, which, on its part, will bring about a stagnation of blood in remotor localities." In the same way all such conditions as parametritic exudation, retroflexion, anteflexion, descensus, prolapsus, tumors, etc., must have an analogous effect upon the pelvic organs. This is brought about through the spinal veins. He says: "It is an anatomical fact that the veins of the vertebral column are strongly developed, and communicate above with the occipital veins, and through the mastoid foramen with the transverse sinus."

This causes direct pressure on the brain, and Samelson, in the case quoted above, thinks that there was a transudation in the orbit which compressed the optic nerve, and Morren agrees with him that there was compression on the occipital lobes caused by venous stasis.

Dr. T. R. Pooley (New York), in a paper on the "Relation of Uterine Disease to Asthenopia and Other Affections of the Eye," endorses the opinion of Dr. J. B. Hunter, who says: "I have in many

cases been so accustomed to hear the eyes complained of where there was chronic uterine disease, that I believe there is no doubt as to the connection between the two ailments. In bad cases of lacerated cervix uteri, where there is much dense cicatricial tissue, patients commonly complain of weakness of the eyes, that they tire easily in reading or writing, and often ache. These symptoms I have known to disappear within a few months after operation for the cure of lacerated or indurated cervix. I have seen the same symptoms in cases of chronic retroflexion and in other affections of the uterus accompanied by congestion. The reason why I have considered the disease of the eyes sympathetic is that such disease has again and again passed away without direct treatment on curing the uterine disease."

Dr. Pooley then draws several conclusions from his investigation of his twenty cases, and says, among other things: "Asthenopia exists in cases where there is no ametropia, apparently due only to reflex effects of the uterine disturbance on the organ of vision. In other cases of asthenopia, in which ametropia is present, and the existence of uterine disease as well, the former is not always relieved by the correcting glasses."

One of the cases he refers to is that of a woman, aged thirty-four, with asthenopia, but with perfect vision, who had dysmenorrhea and hemorrhages, due to fungosities of the uterus, but when, after a curetting operation, the normal menstruation was reëstablished, the asthenopic symptoms were entirely relieved. In another case of retroflexed uterus the eye symptoms subsided as soon as that organ had been restored to its normal situation.

Finkelstein, in the Clinic for Nervous and Mental Diseases in St. Petersburg, made extensive and critical studies on the influence of epilepsy, hysteria, alcoholism and neurasthenia on the eyes. Of hysteria he says: "The fields of vision undergo a concentric contraction, and the more severe the attack the more considerable is the contraction. The fields of color vision also undergo a concentric contraction. Paracentral scotoma for green alone, or for all colors, is also met with in hysteria. A rapid exhaustibility of the retina is more noticeable in hysterical than epileptic subjects."

The study of the condition of the visual field should be made in these cases, especially where they complain of amblyopia and there is no corresponding ophthalmoscopic lesion.

A patient to whom I had recently given glasses wrote me that she had suddenly so far lost her sight that she could scarcely recognize her friends. I feared some serious trouble, but when she came, at my request, for examination, I found the fundus of both eyes sound. Her field was contracted almost to the point of fixation, and her vision reduced to $\frac{1}{15}$. She suffered from ovarian disease and from dysmenorrhea. She made an excellent recovery under rest, electricity, massage and tonics.

Morren considers episcleritis a disease frequently associated with uterine disorders. It is generally seen among females and is very chronic and rebellious to treatment and disposed to relapse. He reports a case of metritis which brought on an attack of episcleritis: "The patient was forty-five years of age. Her right eye became affected at the time she was undergoing treatment for retroflexion of the uterus, in which there was a tumor of its neck. Every time that the vaginal portion was touched or a pessary was put in her episcleritis was worse, and she had intense ciliary neuralgia. The episcleritis was cured, and remained so for about a year, when she again had uterine trouble and episcleritis occurred in her left eye, which got worse every time an application was made to the uterus."

The mechanical irritation to the prolapsed womb has been noted a number of times. Wiel describes the case of a mother of thirty-five, who had only quantitative perception of light in the right eye and ability to count figures at 7' with the left eye. There was narrowing of the field of vision, headache, tinnitus aurium and dyspnea. The uterus was so prolapsed that it rested on the perineum. After replacement and the adjustment of a pessary, and the use of iron internally, her vision began to improve. In a month she had $V=\frac{1}{10}$ in the left eye and the right eye was somewhat improved.

The period of lactation, so trying to some mothers, is associated with several ocular diseases. Catarrhal and phlyctenular conjunctivitis, as well as inflammations of the cornea, iris, and sclera, have been reported. Asthenopia is often a

symptom which lasts until lactation ceases. More serious affections of the choroid, retina and optic nerve have been reported by the best authority.

Förster in the "Handbuch der Augenheilkunde," cites a case reported by Gibbons, of a mother, twenty-five years of age, who in three successive periods of lactation suffered from amblyopia, and who, in the third one, became entirely blind. The pupils were widely dilated and fixed. Weaning the child and supporting treatment restored the lost vision.

A large number of eye complications are intimately associated with pregnancy from first to last. Among the first are asthenopia and loss of accommodation. The former shows itself in an inability to use the eyes long for any purpose. They tire easily, and any attempt to read is followed by lachrymation and injection of the eyes. Sometimes the accommodation is so impaired that convex glasses are necessary. While on this point I will say that after delivery women often try to read or sew too early. This is frequently followed by a long period of asthenopia, lasting sometimes several months. After delivery the eyes, in sympathy with the general physical condition, are unable to perform their functions in a normal condition, and care should be taken not to overtax them.

Micropsia, or seeing things smaller than natural, and hemianopsia, are symptoms which have been observed. Paresis of the ocular muscles occurs occasionally, but it is transient.

The vomiting of the early stages of pregnancy is sometimes followed by retinal or choroidal hemorrhages. Mr. Power reports a case where an extensive hemorrhage from this cause was followed by permanent impairment of vision.

You have all of you doubtless seen cases of albuminuric retinitis due to pregnancy. It comes on usually during the seventh or eighth month, but has been observed as early as the third. It is not accompanied by any pain, the only symptom being the impairment of vision. It usually is symmetrical, but exceptionally affects only one eye. Its attack is sometimes sudden owing to the hemorrhages and exudations in the macula region. The ophthalmoscopic picture which the disease presents is typical and striking, and easily recognized as such. The involvement of the retina is more or less extensive in different cases.

The question of premature delivery comes up in these cases. In the Transactions of the American Ophthalmic Society, Vol. 3, Dr. E. G. Loring, of New York, discusses the propriety of bringing on premature delivery to save the mother from impending blindness. He considers that in not a few cases it is not only justifiable, but where the true principles of sound practice demand its adoption. He instances several cases of retinitis albuminuria in pregnant women where premature delivery was resorted to with the best effects as to the mother's vision. From a moral as well as a legal standpoint he considers the operation justifiable. After induced labor the absorption of these exudations and hemorrhages into the retina begins almost at once. Little by little the blood disappears, and the outlines of the vessels and the optic disc come into view, and finally useful if not perfect vision is restored. Förster reports a case of a second pregnancy where the albuminuria came on during the last month. She had convulsions and lost all perception of light. This continued three weeks. The exudation began to absorb, and in another three weeks she could begin to see. In seven months the exudation had disappeared, the optic discs were pale but sharply defined, and the retinal vessels in the right eye remained, amaurotic, but in the left eye she regained $\frac{2}{3}$ vision.

Dr. Wadsworth (Transactions American Ophthalmic Society, vol. 4) reports a case of detachment of the retina in both eyes with albuminuria of pregnancy. She was advanced about seven and a half months when the amblyopia came on. There was very general detachment of the retina of the right eye and partial of the left, with marked impairment of vision. Her urine was blocked with albumen. She was treated for a few days with hypodermic injections of pilocarpine, under which her vision improved. Ascites developed, and it was decided to induce premature labor. The final result was favorable for the mother and child. The former recovered good vision, the detachments disappearing; and the latter, after a struggle, lived.

Not long ago I saw an interesting young married woman with atrophy of both optic nerves following parturition. There was a history of albuminuria, and when I saw her her physicial condition was excellent, but the atrophy was far advanced, with no

hope of relief from treatment. Within the past few weeks I saw a married woman, twenty-nine years of age, who had a severe chorio-retinitis coming on after delivery. There were patches of exudation in the macula region, with subretinal hemorrhages near the optic disc. At her second visit I found her better, with a prospect of regaining useful vision. It was probably albuminuric. The time for testing this point and proving it is during pregnancy. It seems to me that it would be good practice to have the urine tested occasionally during the latter months of pregnancy, so as to determine this point. Certainly all complaints of dimness of vision should be carefully looked into, and the urine examined so as to determine the condition of the retina and choroid and presence or absence of albumen.

The menopause is fraught with many dangers to the eye. This critical period of a woman's life is not passed without many dangers to health in various ways, with which an you all familiar. The eye sympathizes with the general struggle which is going on, and the chroid, iris, retina and optic nerve are not infrequently involved.

Let me give you one typical case of a woman of forty-five, who came to me with a chorio-retinitis of the right eye. She had periodical flashings of heat through her head, vertigo, headache and a general feeling of prostration. When first examined there was an extensive involvement of the macula region—a circumscribed swelling with exudations and hemorrhages. There was a dense central scotoma, which destroyed central vision. About a year later the second eye was similarly attacked. Although a very prompt and active treatment was instituted, she recovered with a large permanent central scotoma in each eye, which destroyed central vision.

Excessive loss of blood, whether from the uterus or not, is a well-known cause of blindness, either temporary or transient. In 105 cases of uterine hemorrhage collected by Fries, 24 affected vision—7 after abortion, 7 after normal labor, once each after premature delivery, profuse menstruation, uterine polypus (carcinoma), and six not specified. Gowers speaks of a case of blindness from post-partum hemorrhage associated with neuralgic pains above the eyes, which lasted several days. The patient recovered good vision in one eye and partial vision in the other, but with impairment of the field.

Dr. Engelman, in the "American System of Gynecology," in his contribution to the hystero-neuroses of the eye, refers to the statements of Rampoldi, of Pavia, who divides the uterine and ocular diseases into five groups.

1. Hysteria and chronic perimetritis, he states, are causative of asthenopia, retinal hyperesthesia, rarely of ptosis or anesthesia of the retina.

2. Menstrual disorders. He believes amenorrhea is causative of conjunctivitis, keratitis, iritis and phlyctenulæ. To suppression of menstruation he refers diseases of the choroid, together with neuritis and retinitis, and says they can only be improved after reappearance of the menses. The tendency to glaucoma is known to accompany sudden suppression.

3. Inflammatory diseases result in hyperesthesia and neuralgias of the trigeminus, protracted forms of iritis serosa and sclerosis.

4. Pregnancy causes the difficulties accompanying the albuminuria of pregnancy. Amblyopia and amaurosis have been common from three to fourteen days after hemorrhage.

5. Lactation and the puerperium cause panophthalmitis, and many diseases resulting from weakness and debility, ulceration of the cornea, retinitis, retinal hyperesthesia, photophobia and disturbances of accommodation.

Dr. Engelman adds: "I cite these diseases, which are here considered as cause and effect, but, though they may be so, certainly but few are reflex neuroses, and though Rampoldi has observed in individual cases the ophthalmic lesions in connection with pelvic affections mentioned, I do not believe that any such positive relationship of individual phases of uterine diseases to ophthalmic lesions can ever be established."

This statement is somewhat at variance with what follows, for he instances several cases where relief of the uterine disease was followed by amelioration of the ocular symptoms. One case is of especial interest. He observed upon making application of iodine to the cervix uteri that there was severe pain behind the left eye, and a sensation as if it was pushing out. This continued until the effects of the

iodine had passed off. The phenomenon was so strange that he repeated it several times with the same result, while other remedies did not affect her similarly. Here cause and effect were certainly established. He also refers to a young lady of twenty-four suffering from endometritis, cellulitis and amenorrhea, in whom an amblyopia followed amaurosis, appeared with an exacerbation of the uterine disease, but which was always improved by uterine treatment.

There seems to be some coufusion as to the definition of the term uterine reflexes of the eye. Where are we to draw the line between reflexes pure and simple, which pass off, leaving no structural change behind, and pathological reflexes which show organic alterations in the ocular tunics or the optic nerve? In hysterical amblyopia we have total blindness, but no structural or organic lesion of the retina. Is this a uterine reflex? In suppression of menstruation we have retinal and choroidal hemorrhage, and sometimes permanent impairment of vision. Is this a retinal reflex? In prolapsus uteri we have marked asthenopic symptoms and they are relieved when that organ is restored to its normal position. Is this a uterine reflex? In pregnancy we have albuminuric retinitis, and it disappears upon a natural or instrumental delivery. Shall we call it reflex? Is it only reflex when no organic lesion exists in the retina? Shall we not as justly include the other conditions also?

The observations of many competent men show that there is a recurrence of associated conditions between the uterus and the eyes which seem to follow as a *post hoc ergo propter hoc.* Engelman says that "the ophthalmic reflexes are much more persistent and yield much more slowly than those on the part of any other organ, and if they have persisted for years they are very liable to result in structural changes and disease proper of the eye." Again, he says: "In no organ is the persistent continuance of a reflex so liable to result in actual changes as in the eye."

Take, then, for example, dysmenorrhea which is associated with choroidal or retinal hemorrhage. The congestion of the choroid takes place during many menstrual periods before the hemorrhage actually occurs, but finally the vessels yield and the hemorrhage is visible with the ophthalmoscope, and vision is seriously impaired. Are the congestions which precede the hemorrhage reflex, and is the final attack, when the overtaxed vessels rupture, not reflex? Does not the law of the Stevenson wave come in here for consideration?

It is no argument to say that there are thousands of cases of uterine disease where there are no ocular symptoms. That proves nothing. All rheumatisms do not affect the heart, but some do. All exposures to the cold do not cause pneumonia, but some do. There seems to be a direct connection between the uterus and the eye in many well authenticated cases. Will you not lend your aid in clearing up the mystery which covers the relationship between them?

The ophthalmoscope can do much for the recognition of ocular disease in connection with uterine diseases. Light can be thrown on amblyopias, whether of organic or functional origin, which will be of much value to the suffering client. A differentiation between these two forms of disease can be made, and thus aid materially in a rational treatment. The relief of the asthenopias by the trial case will give much comfort by the correction of the ametropias of various kinds which are met with. Muscular errors can be corrected and the accompanying distress relieved. Doubtless the general physical condition has much to do with the associated involvement of the uterus and the eyes. With the health broken down with external and other diseases the eyes are more liable to certain affections than they otherwise would be.

The highest authorities in the ocular field of work and investigation believe in the connection between uterine diseases and diseases of the eye. May we not have co-operation of those who devote their lives to uterine work to aid us in the further prosecution of this interesting and somewhat obscure subject?

A New Sensation.

The small boy had gone out with his father for a sail and the bounding billows had shaken him up to the extent that he had parted with his breakfast.

"Oh, Papa," he exclaimed after the second attack, "what makes me unswallow that way?"

COMMUNICATIONS.

IS TOTAL EXTIRPATION OF THE RECTUM EVER JUSTIFIABLE?*

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In the title the fact is indicated that such a procedure is advised, and I may add is strongly recommended by many. With due deference to all I shall raise the question as to its justification. It can not be gainsaid that some surgical operations are done with but little to recommend them. In this age of progress in surgery, I opine that some are led into doing operations as much to test the methods of others and to put themselves in line, as to accomplish that which should be the surgeon's chief aim, viz., to relieve the patient. It can not be denied, either, that there is what might be properly called a *rage* in surgical work, and it behooves surgeons occasionally to take a breathing spell and look back over the field, if not over the dead. I admit that conservatism in surgery oftentimes may mean early and complete operations, but it must be admitted that he is the best surgeon who has studied well his subject from all standpoints and is ready for any emergency. To operate or not to operate, is often the question, and much rests on the decision. If the eager, ambitious, aspiring young surgeon could have in his time of need the advice of his cooler-headed elder brother who has met with many a danger, what a blessing! We, in this country, are much given to copying our European brethren, even to their vagaries, in both medicine and surgery. New instruments, new operations, new books, new everything, is the cry with us, and we don't stop to think whether the new is any improvement over the old or not. Oftentimes the *original* operation is far preferable to the so-called modification of the same.

With these remarks as a preface, I desire to call attention to the question propounded. "Is total extirpation of the rectum ever justifiable?" There are two propositions I submit against the advisability of the total extirpation of the rectum for any cause:

1. Is the patient ever cured of the trouble operated for, by said operation?

2. Is the patient ever materially benefited or relieved by the operation?

I take it for granted that the only cause for which it could be said that total extirpation of the rectum should be practiced, is malignancy. I use the term here as synonymous with cancer. We note, then, the characteristic features of malignancy as: the disposition to grow, to ulcerate, to infiltrate and to propagate. It is an aphorism well known in surgery, in cases of cancer, "operate early if you desire success." All teachers, too, know how assiduously they urge a *thorough* operation whenever dealing with this character of tumor." For instance, when removing malignant growths of the breast, how important it is to remove the glands in the axilla also. Again, how insidiously does a malignant tumor invade the system and establish a cachexia. How difficult to tell the dividing line between a local condition and a general infection. Add to this the suspicion always that the tumor has propagated.

These questions are difficult of solution, even when the growth is situated in or upon the external parts. How much more difficult when located in an obscure part of the anatomy as is the rectum. Cancers found here are so stealthy in their growth and invasion of tissue that oftentimes the whole rectum is blocked by the mass while only symptoms of constipation and some reflex pain are complained of. The tissues surrounding this portion of the gut are soft and easy of invasion; the blood circulation is great and the lymphatics are freely distributed. The contiguous parts are vital ones; the bladder, the peritoneum, the prostate gland, the

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vagina in the female, are all easy of invasion. By the time that a growth in the rectum has assumed sufficient proportions to be diagnosticated as cancer, many of these parts are already invaded by the process of infiltration. To dissect and draw down the rectum in the normal state may be comparatively an easy matter, but to completely dissect out a rectum that is so pathologically changed as in a cancerous growth, is nearly a physical impossibility. Beside the difficulty of accomplishing its free dissection, it is one of the bloodiest operations that I have ever attempted.

Admit that it can be successfully done, I would ask what amount of good accrues to the patient? Infiltration is clearly proved by the amount of adhesion that is witnessed. Can we, now, "cut wide of the mark?" I believe that every surgeon will concur in the opinion that to make the operation complete, all glands in the inguinal region should be removed. But what about the infiltrated tissue left in and around the rectum? It does not require very much dissection to draw down the natural gut. Sever its connection at the anus, and it can be pulled down. But it requires a long, tedious, and free dissection to remove the cancerous rectum. What shall we do with the injunction to "cut wide of the mark?" It can not be done without invading with the knife the vital parts mentioned. Nay, not then. Then of what use is the operation? A bloody procedure, rectum gone, and infiltrated tissue left. Would any sensible surgeon dissect out a cancer in the breast and cover the wound with infiltrated flaps? Why, then, should a surgeon dissect out a cancer of the rectum and leave infiltrated tissue? How can he prevent it, or how is he to know that infiltration into the adjacent tissues has not taken place?

It is nearly self-evident from the clinical history of all these cases and from the pathologic changes, that such condition does exist. A cancer of the rectum in its incipiency is very difficult to detect, and is rarely seen by the surgeon in this stage. If it invades the anal orifice first, this rule does not hold good, but no surgeon is likely to remove the entire rectum for a growth at the anus. It must be admitted that it is in the incipient stage of cancer that an operation would be most justifiable. And yet for a nodule along the course of the rectum, any surgeon would hesitate about removing the whole rectum. Then if it is not justifiable to totally extirpate the rectum for a circumscribed or incipient condition of cancer, is it justifiable to remove the same after adhesions, infiltration and a cachexia has been established. When, I would ask, is total extirpation of the rectum justifiable?

All malignant growths affecting the anus first should be removed, if seen at the the proper time. If a growth of this kind is situated in the immovable portion of the rectum, and has not extended higher than this, or has not invaded vital structures, the surgeon can remove it, observing the injunction to "cut wide of the mark." But this is a very different thing from removing the entire rectum and that, too, when no promise can be given.

I have written after a fair trial of all methods proposed for the total extirpation of the rectum. But as I have usually seen these patients go on from bad to worse, I must confess that some remorse of conscience has overtaken me when the question stared me in the face, why did I do so formidable an operation, when in truth there was no good surgical reason for doing it. This is an unfortunate class of patients, the most unfortunate of all, and they do indeed catch at straws. They need our fullest sympathy, and nothing less than a firm conviction that we can either cure or materially benefit them, should lead the surgeon to do so radical an operation as the total extirpation of the rectum. Can we promise either?

CORRESPONDENCE.

CHRISTIAN SCIENCE—REPORT OF A CASE.

Editor of MEDICAL AND SURGICAL REPORTER:—Within the past few months I have noticed several articles on the so-called Christian science craze, published in the MEDICAL AND SURGICAL REPORTER, and as I have had one case in which I came in

contact with some of the most ardent believers in that system, I will report it.

Why the system is called christian science we have not far to look for an explanation. The devotees and adepts of the system believe that the spirit of Christ still lives and has control over the diseases of the living, and that if He is properly asked in good faith to cure any given case He will do it without any administration of medicine by physicians. These people are sincere in this belief however unreasonable it may, appear to others.

I cannot see why there could not be just as effectually a Gantama Buddha-science, a Mohammedan-science, a George Washington-science, a Confuscian-science, a Morman-science, or an Ann Lee-science. If I had a case of ovarian disease and were to trust it to the spirit of any dead man, I think I should prefer a McDonell-science, or Peaslee-science, or some of those pioneers in that department of gynaccology, than to any of those religionists who did not understand anatomy or pathology, when on earth. I shall put my trust in the advancement of science and education, where, every time, will be found reason, common-sense and truth. So strong is the faith and trust of the christian scientists that they will treat themselves and their duped friends and patients, even to the point of death, without consulting a physician. There are many cases that will recover without medicine, and such cases in the hands of christian scientists gain points for their system.

I will report a case that was a hard one for them to gain a point. Thomas—, aged about 16 years, while working with a chain in an ice-house, got two fingers caught in the links, tearing off most of the flesh from the two last joints. He wrapped a handkerchief around the fingers and started for the doctor's office. His parents were soon at the office. They were both strong believers in christian science, but this case was a little too much for them to cope with. However, the mother, having rather the more faith of the two, endeavored to substitute prayer for the surgeon's case. The fingers were bleeding profusely, and were exceedingly painful. The mother took him into a room alone and tried for one whole hour to persuade him that the fingers were not bleeding, not painful and that it would not be necessary for the doctor to dress them. The young man stood it rather impatiently, and at the end of the hour he would endure it no longer, but called us in to dress the fingers. The mother objected to the administration of an anesthetic, but yielded to her son's wishes when we informed her that we did not care to give him an anesthetic, as we could amputate the fingers just as well without.

The anæsthetic was administered and the fingers properly dressed in much less time than it took the mother to go through with her useless incantations.

After the treatment was completed the mother, being a very *tonguey* woman, delivered an *address* in favor of Christian science, berating with strong invectives the medical profession. I told her at once that if she or any of her associates would cause Thomas fingers to grow out full length and be of as good shape as they were before the injury, I not only would *take stock* in the system, but would practice it exclusively the remainder of my life. She was indignant and replied that if we could have faith enough, it would not be more than twenty years before it could be done! I inquired, if it took her profession twenty years to grow out amputated fingers, how much time would it be necessary for her to take the ends of Tom's fingers and grow another Tom back of them? There were no bounds to her indignation.

If that process could be made successful what an improvement it would be over the *old method* of raising and multiplying children! All we should have to do to raise a large family of children would be to select some good child, chop off the fingers and set them to *sprouting* under the direction of some Christian science adept. No more sore nipples; no more eclampsia, and no more ruptured perinei; no fears of conception.

Well, I awake from this dream. There is no use to try to instill the light of science, or reason, or even common sense into these wild fanatics. They will heed no reasoning, but pursue their accustomed channels of thought. Their insanity is incurable; we never hear of a recovery; they are past help when once started on that line, although rational on all other points.

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SATURDAY, AUGUST 10, 1895.

EDITORIAL.

"A MEDICAL STUDY OF THE JURY SYSTEM."

Dr. Crothers, in the *Popular Science Monthly*, says: The uncertainty of jurors, and the capricious, whimsical character of their verdicts, are accepted as inevitable and explained as part of the natural weakness of the mind. It is assumed that, if the facts are clearly presented, a jury will give a common-sense verdict which will approximate the truth and human justice. Where they fail, it is due to the confusion of testimony, the misrepresentation of counsel, and the general perversion of facts. Many thoughtful men consider the judgment of twelve men, who are disinterested, superior and on general matters of dispute of far more reliable character than the judgment of one trained man. Yet literally, the verdicts of twelve men, based on the same set of facts, differ widely, and can never be anticipated; and, whether wise or unwise, are clearly due to other influences than the commonly supposed conflict of facts and motives of truth and justice.

While it would be difficult to doubt the motive and intent of the average juror to be just and fair in his conclusions, it would seem that certain conditions and surroundings make it impossible in most cases to either understand the case in question or the principles of equity involved. From a medical and scientific point of view, the average twelve men who are appealed to by the counsel and judge to wisely determine the issue of a case are usually incompetent naturally, and are generally placed in the worst possible conditions and surroundings to exercise even average common sense in any disputed case.

In a noted trial at Hartford, Conn., out of a panel of 100 jurors, twelve men were finally selected after a long, searching inquiry. Five of them were farmers, who worked hard every day in the open air, men who were unaccustomed to think or reason, except in a narrow way along their surroundings and line of work. These

men all swore that they had not read any details of the case, although it occupied a large share of public attention and had been discussed freely in all the papers. They were muscle workers, with but little mental exercise, living on coarse, healthful food, and sleeping from early evening to early morning. Of the rest of the jury, one was a blacksmith and two were mechanics, all steady workers; one was a horse trader, one a groceryman, one a retired farmer and trader, and the last man was an ex-railroad man who had no business. Every one of this jury was accustomed to be in the open air, and had not read details of the case, although he had heard it talked over. Not one of these men would have been chosen to take charge of any trust, or to decide on any matter outside of his everyday life—simply because, on general principles and from common-sense observation, he would have been considered clearly incompetent. For ten days this jury was confined from five to six hours a day, listening to the testimony of the mental capacity and motives of the maker of a will that was disputed. Of course, they disagreed; and had they reached a unanimous verdict, its wisdom and justice would have been a matter of accident.

In a noted murder trial at Portland, Me., it was evident that the jury had been impressed favorably to the prisoner. The prosecuting attorney suggested to the sheriff that he invite the jury to church Sunday evening to hear a noted preacher. The topic of the clergyman was "God's Hatred of Sin, and DIVINE JUDGMENT." The attorney knew the topic and the intense dogmatism of the preacher, and calculated its effect on the jury. A verdict of conviction followed, due almost entirely to the sermon. The personal characteristics of the jury are often the only doors through which they can be influenced. Religious, political, and social or personal prejudices are often considered by counsel in the presentation of the evidence. In reality, the average juryman becomes more incapacitated to rise above his prejudices, or to reason impartially, every day he is confined to the court room. At the end of a long trial he is utterly unable to form any new views, and nothing remains but his old prejudices, and these are often more fixed than ever.

The following record of a juryman's experience was made by a carpenter of more than average intelligence. He put down each night his impressions: The first day he was impressed with the magnitude of the case and the sadness of the prisoner. He did not sleep the first night, for the reason that four men occupied one room. The air was bad, and two men snored loudly. The second day he tried to remember all that the witnesses said, and its bearing on the case, and at night was very weary and went to bed early, but was wakened and disturbed by the other jurors. The third day his head ached, and he could with difficulty follow the testimony. His appetite was poor and he was drowsy. The fourth day he was astonished to hear opposing evidence; statements which had been made by apparently honest men were affirmed to be false. He was shocked, and his first impressions and personal interest were disturbed. His head ached, and he felt weak and nervous; his appetite and sleep were broken. The fifth day he gave up all efforts to follow the testimony, or to understand what was said. He felt stupid and excessively tired. The other jurors began to complain of the food and the sleeping rooms, and had several quarrels with each other on religious and political matters. Foolish stories were told, and card-playing and personal boasting filled up the evenings. They all manifested disgust at the trial, and longed for the end, and declared they would never be caught in a similar case. On the sixth day the case was closed. The arguments of attorneys and

the judge's charge seemed very dull and wearisome. He felt sick, looked forward to a release, and his interest in the case had died out. He could not understand why so much was said that was contradictory, and why the judge should not tell them the real facts of the case. In the jury room no discussion took place; each one voted "guilty" or "not guilty;" and when they found the majority was "guilty," most of them followed the majority. Two of the minority became angry, and refused to vote for over a day, except in favor of the prisoner. They gave no reasons for their belief, only saying that they were right and the rest of the jury were wrong. Finally, one of these men was accused of having some personal object in voting for the prisoner, and after a short altercation he changed, and the other man followed him, and the verdict "guilty" was agreed upon.

ABSTRACTS.

SYNOPSIS OF FATAL CASES OF TYPHOID FEVER IN THE PENNSYLVANIA HOSPITAL DURING THE YEAR ENDING, FIFTH MONTH, 1st, 1895.

I. J. F. Admitted fourth month, second, 1894. Male, white, Norwegian, sailor, aged 28. Brought to hospital from steamer. On admission was found to have croupous pneumonia of the right base which had begun five days previously. Was in very bad condition; temperature 105°; pneumonia terminated by lysis nine days after admission. Developed milk leg (right). Twenty-three days after coming into hospital his temperature again began to rise and a number of rose-colored spots —disappearing on pressure—appeared on the abdomen, and the spleen became much enlarged. Died eight days after rose-colored spots were first noticed. Temperature during these eight days ranged about 104° and 105° with brief falls due to baths or sponges.

Autopsy disclosed a generalized peritonitis with much deposition of lymph. Appendix vermiformis showed marked inflammation of its mucous membrane with several small ulcers. There were two or three large ulcers in Peyer's patches. Colon much distended with yellow fecal material, with numerous points of ulceration throughout its whole extent.

II. L. Q. Admitted fourth month, 12th, 1894. Female, white, American, housewife, aged 21 years. Admitted on the eighth day of the disease. Very sick on admission; temperature ranged about 103° and 104°—not much affected by baths, attaining high level one hour after bath was given; had very obstinate vomiting and diarrhœa. Twenty-three days after admission temperature reached normal by lysis and remained down for seven days when it began to gradually ascend without discoverable cause—remained slightly elevated until her death thirteen days later, which was apparently due to exhaustion. Had to be fed by nutritive enemata for some days previous to death.

III. T. C. Admitted fourth month, 24th, 1894. Male, white, English, driver, aged 19 years. Admitted on the ninth day of the disease. Died six days after coming to hospital; temperature ranged about 103° and 104°. Was reduced a degree or so by baths, but in an hour would have attained the same or in some instances a higher elevation.

IV. F. M. Admitted sixth month, 9th, 1894. Male, white, German, aged 31 years. Came in on the eighth day of the disease; delirious and very weak on admission. Died four days later.

V. W. R. Admitted seventh month, 14th, 1894. Male, white, American, aged 21 years. Admitted on the eighth day of the disease; condition so bad that he could not be bathed; abdomen greatly distended

from time of admission. Was sponged and guiacol was tried for the reduction of temperature. Died seven days after admission.

VI. C. P. Admitted seventh month, 20th, 1894. Male, white, German, aged 25 years. Admitted on the fifteenth day of the disease. Had a very high range of temperature and several very profuse hæmorrhages from the bowels. Died seven days after admission.

VII. C. C. Admitted seventh month, 29th, 1894. Female, white, Irish, aged 29 years, housewife. Came to the hospital on the eighth day of the disease; temperature persistently high, 104° and 105°. Stood baths so poorly that their use had to be abandoned. They did not effect much reduction of temperature. Died eight days after admission.

VIII. E. G. Admitted seventh month, 31st, 1894. Female, white, American, aged 18 years, housewife. Came in on the eleventh day of the disease. The day after admission she became wildly delirious with symptoms of meningitis. Died ten days after admission. *Autopsy* revealed many deeply excavated ulcers about the lower part of the ileum. Membranes of brain and upper portion of cord showed evidences of recent inflammation.

IX. H. M. Admitted eighth month, 10th, 1894. Female, white, Scottish, aged 18 years, housewife. Came in on the third week of the disease. Had an abortion on the fourth day after admission. Died on the fifth day after admission.

X. M. M. Admitted eighth month, 11th, 1894. Male, white, Dane, aged 29, waiter. Came in on the sixth day of the disease. On admission he had systolic murmurs at the pulmonary, mitral and aortic orifices. It was impossible to determine whether they were functional or organic during life. He was delirious when brought to hospital and died eight days after admission. At *autopsy* many typical typhoid ulcers were found. The heart was large, flabby, very deeply stained, otherwise negative.

XI. D. D. Admitted eighth month, 11th, 1894. Male, white, Italian, age unknown. No history of illness obtainable. Had croupous pneumonia of both bases on admission. Died thirteen days after coming in. *Autopsy* revealed typical typhoid ulcers.

XII. A. J. Admitted eighth month, 26th, 1894. Male, white, English, age unknown. Had been sick one week previous to admission. When brought to hospital was delirious and very weak. Died two days after admission.

XIII. J. S. Admitted eighth month, 27th, 1894. Male, white, Italian, aged 15 years. Came to hospital in third week of disease. Was delirious and very sick. Died two days after admission.

XIV. F. W. Admitted eighth month, 28th, 1894. Male, white, Irish, aged 23 years; sailor. Patient removed from his ship on which he had been sick several weeks without any medical attendance. Was stuporous when admitted with symptoms of empyema. Died seven days after admission.

Autopsy revealed large collection of pus in right pleural cavity, and many typical typhoid ulcers in ileum.

XV. M. K. Admitted ninth month, 10th, 1894. Male, white, German, aged 23 years. Came in during fourth week. Wildly delirious and very weak on admission. Died four days after admision.

XVI. E. D. Admitted eleventh month, 28th, 1894. Male, white, American, aged 23 years. Came in in the third week of the disease. Was very sick and weak on admission. Died fifteen days after coming to the hospital. Had a number of very profuse hæmorrhages during the week preceding his death.

XVII. E. A. Admitted second month, 4th, 1895. Female, white, American, aged 43 years; nurse. Came in in third week. Had been delirious for one week previous. Died two days after admission. *Autopsy* revealed many typical typhoid ulcers in ileum.

XVIII. P. D. Admitted fourth month, 1st, 1895. Male, white, Italian, age unknown. Came in on the thirteenth day of the disease. Was in very bad condition with much hebitude. Died six days after admission. *Autopsy* revealed many typhoid ulcers in Peyer's patches.

XIX. T. W. Admitted fourth month, 5th, 1895. Male, white, American, aged 33 years. Had been sick for one week before coming to hospital. Had croupous pneumonia of right lung and was very delirious. Many blood casts in urine. Died seven days after admission. *Autopsy* revealed many typhoid ulcers in ileum, croupous pneumonia of right lung, and hæmorrhagic nephritis.

Cases I and XIV were removed from ships, each suffering a severe illness; one pneumonia, the other empyema. Both had been in unhygienic surroundings, and had lacked proper care.

Case IX had an abortion on the fourth day after admission.

Case XI had croupous pneumonia, the symptoms being so severe as to mask those of typhoid.

Case XII died two days after admission.

Case XV came to the hospital in the fourth week and died four days after admission.

Case XVII was admitted in the third week and died in two days.

SOCIETY REPORTS.

OBSETRICAL SOCIETY OF CINCINNATI.

Dr. Joseph Eichberg read a paper on

SPINAL SYMPTOMS IN RELATION WITH HYSTERIA.

DISCUSSION.

I have often been puzzled as to these hysterical attacks, whether they were cerebral or spinal. The general definition is that in cerebral attacks there is complete abolition of intelligence, and when they are spinal or atonic the mind is not affected at all. We have a mixed condition in hysteria that is very mystifying. I do not think anybody ever studied the condition of hysteria without recognizing this, especially in the convulsions of hysteria. There is a peculiar expression, a twinkling about the eye, that indicates to you there is conciousness there. But when the patient becomes conscious and you make inquiries as to what she knows, you will find she knows nothing about it. There is complete abolition of her intelligence. The explanations I have heard tonight of hyperesthesias and anesthesia I have never observed before, and they are new to me. They certainly commend themselves to me, and sound very much like truth, and in many of these cases I have no doubt but the explanations of anesthesia that have been given will be satisfactory, and that the difficulty is really in the brain. It is centric, not as a result of disease, as I understand it, but as a result of organization. As I said, I cannot discuss this question, but I think I have appreciated the paper, and have certainly enjoyed it very much.

DR. C. D. PALMER: If the question was propounded to-night, what is hysteria? and answered by the members of this society, no two persons would give the same answer; and if every member here were to discuss the subject of hysteria, every one would write a different paper. If I were to define hysteria, I would say it was a nervous disease dependent often upon pelvic affection, independent often of pelvic affection, which there is a disordered mind and perverted function. I think one of the chief points of Dr. Eichberg's paper is dwelling on the psychotic conditions in this disease. We all recognize the fact that the disordered mind has more to do in the disease than the condition of the body. We who treat pelvic diseases often observe hyperesthesia of the abdominal wall. Sometimes we are called upon to make several visits to discover the difference between the hyperesthesia of the abdominal wall and the inflammatory tenderness beneath the wall.

If we can distract the mind of the patient we can very often elucidate the whole question. Very often we see hyperesthesia in one of the lower limbs, and very often of the spinal cord, the so-called "spinal irritation," which is largely a myth. What is spinal irritation? One man gives one definition and another man gives another definition. Perhaps Dr. William H. Hammond has written one of the largest monographs ever published on the subject of spinal irritation, and he takes the view that spinal irritation is an anemic condition of the cord, which gives rise to the manifestations. I think that physicians generally do not endorse the

views he has advanced. But some things he has advanced are very plausible. All these cases are more or less benefited by iron, in conjunction with from remedies. The galvanic current is perhaps best utilized in the way which seems to increase the spinal circulation and overcome the spinal anemia. Spinal irritation is a disease which is often itself reflected from the pelvis.

DR. EICHBERG: The first speaker alluded to the differentiation between cerebral and spinal attacks. Of course those were beyond the scope of the paper, as it was intended to deal only with things which could be confused with diseases of spinal origin. The evidence generally speaks for itself. The cerebral manifestations are usually such as not to leave doubt for a moment as to whether they are cerebral or spinal. The difficulty in the cases of hyperesthesia which will probably be more frequently encountered than any other is the recognition of areas of anæsthesia, possibly the tracing to influences which may have an effect upon the case, as age, sex, perhaps mostly shock or injury. The mere examination of the pelvic organs will itself suffice to show there is no reason there for the manifestations that may be present. One thing is the disparity between the symptoms and the amount of damage which may be encountered in a thorough review of the case. The reflex is a point I would especially emphasize. It is of the utmost value, because the differentiation between organic and functional disease oftentimes rests alone upon the study of the reflex. The absence of the reflex would speak for organic disease. Hysterical manifestations are usually accompanied by no loss of reflex at all.

Novel Treatment for Acute Alcoholism.

A young wife had just settled in her new home. All seemed fair and promising, but one night her husband came home very late and staggered into the house. His wife was greatly shocked, told him he was ill and to lie down at one. He did so, His face was reddish-purple, his breathing heavy, and altogether he was a pitable-looking object. Mustard plasters were applied to his hands and feet. When the doctor came, felt his pulse, examined him and found that he was drunk, he said:

"He will be all right in the morning."

But the wife insisted that he was very ill and severe remedies must be used.

"You must shave his head and apply blisters," she urged, "or I shall send for some one who will."

His head was accordingly shaved closely and blisters applied. All night he lay in a drunken sleep, notwithstanding the blisters.

About daylight he awoke to a most uncomfortable consciousness of blistered agonies.

"What does this mean?" he said, putting his hand to his bandaged head.

"Lie still—you mustn't stir," said the wife; "you have been very ill."

"I'm not ill."

"Oh, yes, you are; you have brain fever. We have worked hard with you all night."

"I should think you had," groaned the victim. "What's the matter with my feet?"

"They are blistered."

"'I'm better now. Take off the blisters; do," he pleaded piteously

He was most uncomfortable; his head covered with sores and his hands and feet still worse.

"My dear," he said, groaning, "if I ever should get sick in this way again, do not be alarmed or send for the doctor, and, above all, do not blister me again."

"Oh, indeed, I will. All that saved you was the blisters, and if you should have another spell, I should be more frightened than ever, for the tendency, I am sure, is to apoplexy, and from the next attack you would be likely to die, unless there were the severest measures used."

From that day he has not had another attack of drink.—(*Dover's Journal*)

Beclere presented to the Medical Society of the Hopitals, Paris, a patient illustrating the cure of myxœdema by thyroid therapy. During the course of her treatment she accidentally took a large quantity of tyroid gland—92 grains in eleven days. At the end of this time she had developed such symptoms as tachycardia, pyrexia, insomnia, tremor of the extremities, exophthalmia, polyuria, albuminuria and glycosuria; in fact, a complete picture of Basedow's disease. The writer, therefore, concludes that the latter disease is due to a hypersecretion of the thyroid gland, which may be caused in more ways than one.

CURRENT LITERATURE REVIEWED.

IN CHARGE OF ELLISTON J. MORRIS, M.D., AND SAMUEL M. WILSON, M.D.

JOURNAL OF CUTANEOUS AND GENITO-URINARY DISEASES.

Dr. Eugene Fuller describes

Six Successful and Successive Cases of Prostatectomy.

In elderly men suffering from prostatic hypertrophy there comes a time when a catheter can be introduced with great difficulty, and it is then that the question of operation is discussed.

Prostatectomy has been avoided mainly because of the large mortality from it heretofore, and castration latterly has been preferred. Except in comparatively soft prostates the author questions whether very great involution follows castration and prefers to enucleate the prostate by a suprapubic incision followed by an incision with serrated scissors through the neck of the bladder. The latter incision is about an inch or an inch and one half long, and the author prefers enucleating in this way to that through a large perineal incision. After the prostate is removed a perineal incision for drainage is made and a catheter, about number twenty-six, inserted through it into the bladder. A drainage hole is also inserted in the suprapubic opening and the rest of the opening closed by deep and also superficial sutures. Men even as old as these usually are, dislike to lose their testicles and this fact together with the operation leading to radical cure cause the author to advocate it. Six successive successful cases, several of which were emergency operations, are reported at length.

Dr. Fred C. Valentine writes of the

Treatment of Gonorrhœa with Potassium Permanganate.

The treatment is that employed by Janet of Paris. A glass irrigator is filled with a warm solution of one to six thousand potassium permanganate in water. This is raised by a pulley and when at a higth giving a moderate stream the glans, prepuce, etc. are thoroughly washed by means of rubber tubing fitted with a glass tip. The meatus and anterior urethra are then washed out, after which the nozzle is again introduced into the meatus and the patient directed to breath deeply and attempt to urinate. By slowly raising the reservoir the muscular resistance is gradually overcome and from two hundred to five hundred grammes of the solution forced into the bladder. When this viscus is supposed to be full the tube is removed to allow the liquid to be ejected. These injections are made from two to four times on the first day and twice on the succeeding days until the fourth or fifth, when the gonococci have usually disappeared. After this, injections are made once daily until the discharge disappears, which the author claims will be on the tenth or twelfth day, if not earlier. After this result it is advised to use a two per cent. solution of nitrate of silver once weekly for a week or two, and if the resulting discharge contains gonococci treat it as before—if not it will disappear without treatment. Freedom from danger of any kind is claimed for this method excepting occasionally edema of the penis.

UNIVERSITY MEDICAL MAGAZINE.

Dr. J. William White writes of

Operative Treatment of Fracture of the Patella.

The author has used Malgaigne's hooks and other methods of treatment with success but prefers the operation of Barker, thinking it safe, rapidly performed, and giving good results. The patella steadied by the surgeon's fingers and an incision made in the median line at the lower edge. Through this a strong pedicle needle is passed behind both fragments to the upper edge. The skin is stretched upward and incision made to the point of the needle which is then threaded with an aseptic silk thread and withdrawn. The needle is again introduced unthreaded at the lower cutaneous opening, passed this time in front of the patella, threaded at the upper opening with the same thread and after being withdrawn at the lower incision the thread is tied and the wounds closed. Before tying the ligatures the fragments are rubbed against each other to displace blood clots or any of the tissues that may have slipped between them. A figure of eight bandage is applied with a posterior splint and removed in about ten days. At this time passive motion is made and a light plaster bandage applied.

Dr. De Forest Willard and James I. Johnston report a

Case of Cephalic Tetanus with Recovery.

The title is applied to cases of unilateral facial paralysis associated with tetanus and due to injury to part of one of the cranial nerves. The disease is a rare one, the patient reported being the only living American case on record.

A boy of twelve years while at play was struck by a small dirty stick, possibly soiled with manure, and had the skin near the inner canthus of his right eye lid slightly torn. The wound was dressed twice and then a week later the boy was found to have paralysis of the facial nerve of the right side of the face, with trismus and a spastic gait. The boy was unable to whistle or to open his jaw.

The symptoms became more marked and a tendency to opisthotonos increased. The position of the cicatrix made it impossible to

excise it without subsequent eversion of the eyelids, so a tenotome was slipped under it to loosen it from the underlying tissues. This led to decided improvement, probably by dividing the nerve filaments.

The patient was kept in a dark room at a temperature of 72°, and guarded from draughts, noises, etc. The diet was milk exclusively. The bowels were kept open with calomel and salines, and bromides, chloral, and opium were given in increasing doses until seventy-five grains of bromide, thirty of chloral, and thirty-six drops of deodorized tincture of opium were given daily, and maintained for four or five weeks. During convalescence milk punches containing two drachms of whiskey were given three times daily.

An attempt was made to use tetanus antitoxin but none could be obtained.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

THERAPEUTICS.

The Dangers of Antitoxin.

What seems to us the strongest argument yet brought against the employment of antitoxin as a specific for diphtheria, is conveyed as follows in a recent communication to the *Medical Journal*, by Dr. Samuel Treat Armstrong:

Those that heard Dr. Winters' very comprehensive criticism of the value of antitoxin serum in diphtheria, at the meeting of the Academy of Medicine on the 4th inst., cannot but feel that an important factor has been overlooked in the consideration of the treatment with this substance; and that factor is the globulicidal power of alien serum on the blood of an animal into which it is injected.

In a monograph on Transfusion of the Blood, published in 1875, L Landois reported that the serum of the dog, the horse or the rabbit, dissolved the red globules of other animals with great rapidity. And in the last edition of Professor Stirling's translation of Ladois's Physiology, there is the statement that, if the serum of one animal is transfused into an animal of another species, the blood corpuscles of the recipient are dissolved, and if there is a general dissolution of the corpuscles death may occur.

Dr. G. Daremberg (*Arch. de Med. Exp.*, 1892) stated that his experiments showed that, while the serum of an animal of one species did not destroy the red corpuscles of an animal of the same species, it rapidly destroyed the corpuscles of an animal of another species. If warmed to from 122° to 140° F., or exposed to the light for several days, the serum lost this globulicidal power.

G. Haymen, in his monograph on the blood, states that the serum of the ox more or less profoundly changes the blood of the dog, producing in it small emboli that may involve the functions of organs or even life itself. Microscopically, these emboli consist of degenerated elements of the blood, the hemotoblasts and the red and white corpuscles being altered by the serum. He specifically states that horse's serum produces phenomena similar to those caused by ox's serum. He further states that the urine is habitually suppressed and the kidneys are congested.

The tendency of alien serum to produce emboli has also been noted by C. Lazet (*La France Med.* 1891), who found that if the serum of a dog was mixed with the blood of a man, or *vice versa*, there were produced more or less pronounced alterations, and solid concretions were formed from the metamorphosed elements.

The author believes that it was this tendency of alien serum to form emboli, that caused the death of the seventeen-year-old girl in Brooklyn. And this toxic influence of serum *per se* explains all the unusual and untoward phenomena that have been reported in diphtheria patients treated by antitoxin serum. The post-mortem lesions found in the five-year-old child whose clinical history is reported in the *British Medical Journal* for March 30th, correspond throughout with those observed by Haymen in dogs that died from the effects of alien serum injections, though the animals were given forty times as much serum as the human being.

Empiricism that has bacteriology as its sole foundation is as condemnable as any other form of that cult, and as prognosis is not yet a lost art, it seems absurd that the medical profession should accept the dictum that all persons whose nasal or faucial secretions contain the Klebs-Loeffler bacilli, should be injected with antitoxin serum. There are many recorded instances in which the bacilli have been found in the secretions of healthy individuals, and there are some recorded instances in which these bacilli have not been found in patients who clinically presented the phenomena of the disease, even to the secondary paralysis.

While antitoxin serum probably has a field of usefulness, it is evident that nice discrimination is necessary to designate wherein it lies.—*Med. Times.*

Antistreptococcic Serum.

According to a brief editorial paper in the *Revue de Chirurgie* of May, it seems very probable, from recent observations, that a

serum has been prepared which is capable of arresting the numerous forms of infection caused by streptococci. About three years ago it was shown by Roger that cultures of streptococci contain two antagonistic substances, one of which diminishes whilst the other increases the resistance of inoculated animals. The former is destroyed by heat, so that with a culture raised to a temperature of 230° F. animals can be vaccinated against streptococcic infection. The serum of animals thus treated acquires the property, not of destroying, but of attenuating the microbes which are introduced into them, and of checking the infection set up by virulent cultures. Serum taken from a mule, which had been extensively injected with sterilized cultures, was used on a woman suffering from puerperal fever. After unsuccessful injections of 8 and 16 c.cm., a third injection of 25 c.cm. on the third day was followed by defervescence of the fever and rapid recovery. Three other cases have since been published by Charrin and Roger (Societe de Biologie, March 30, 1895). The first of these was also one of puerperal fever. Injections of serum amounting to 40 c.cm. were followed after the third day by speedy defervescence and cure. An infant, 21 days old, suffering from erysipelas of the face, recovered after a single injection of 5 c.cm. of serum. In the third case which was one of streptococcic pseudomembranous angina with very serious cardiac symptoms and a temperature above 104° F., a single injection of serum was followed by recovery in the course of thirty-six hours. The author of the paper, though unwilling to draw any definite conclusions from this small number of cases, is hopeful of future success from commencing the treatment early and introducing large quantities of serum. The prospects of success in this direction are favored by the fact that Marmorek, another and independent investigator, has recently recorded a series of 45 cases of erysipelas in which the patients rapidly recovered after the injection of a specially prepared serum.—*Brit. Med. Jour.*

Sterility of Serum.

Nocard (*Sem. Med.*) noticing that blood serum taken with aseptic precautions and kept free from contamination sometimes becomes modified, found that this chiefly occurs if the serum is taken after a meal. He investigated the question, and found that serum taken from an animal is almost always sterile, but that chyle is rarely so. As a rule, three or four hours after a meal a considerable number of bacteria are present in the chyle, and the numbers vary directly as the amount of food given.

"Words of cheer are words of help; words of gloom are words of harm. There is a bright and a dark side to every phase of life and to every hour of time. If we speak of the bright side, we bring the brightness into prominence; if we speak of the dark side, we deepen its shadows. It is in our power to help or hinder by a word any person with whom we have any dealings. A look or word can help or harm our fellows. It is for us to give cheer or gloom as we pass on our way through life, and we are accordingly responsible for the result of our influence."

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ORIGINAL ARTICLES.

ETIOLOGY AND PATHOLOGY OF SYMPATHETIC OPHTHALMIA.*

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In recent years the pathology of sympathetic ophthalmia has been the subject of numerous careful investigations by prominent ophthalmologists which, however, resulted in quite contradictory opinions. Deutchmann gave the experimental proof of what Mackenzie (A Practical Treatise on the Diseases of the Eye, 4th ed. p. 597) tought fifty years ago, that "the chief medium through which sympathetic opthalmitis is excited, is the union of the optic nerves," with the conclusion that the microörganisms from the infected eye apparently enter the optic track in four different ways: 1st, from the perichoroidal space; 2nd, directly from the choroid into the pial sheath of the optic nerve; 3rd, from the sheathes of the central vessels along their branches which radiate into the optic nerve, into the pial sheaths and the intervaginal space; 4th, sometimes probably from Tenon's capsule. (Deutschmann: On Ophthalmia migratoria.) Others, who did not succeed in obtaining the same results, consider it still an open question; and yet others, with Schmidt-Rimpler (*v. Græfe's Arch.* 38.1.) as representative, adhere to a modification of the old theory advanced by Heinrich Mueller, that the ciliary nerves convey the disease from the first to the second eye. Deutschmann with Leber (*von Græfe's Arch.* 27) also acknowledges this, but only for the *sympathetic irritation* which is a reflex neurosis and an entirely different disease, independent of *sympathetic* or, as he calls it, *migratory ophthalmia.* The former is permanently cured by removal of the diseased eye, whereas sympathetic ophthalmia is not influenced by it at all. Both diseases, however, may coexist in the same eye but perfectly independent of each other, or one may precede the other. The sympathetic irritation is not a milder form of sympathetic inflammation, as has been supposed, although eyes which cause sympathetic ophthalmia may also produce sympathetic irritation.

As pointed out by Schweigger, there is no typical form of sympathetic ophthalmia; it is only a diagnosis of probability. This may reach almost certainty, if a normal eye becomes diseased after an affection of the first eye, under conditions which, according to experience, deserve some value: the form of disease of the first eye; that of the second eye; and the interval between both, generally of from two weeks to four months. Schirmer (*von Græfe's Arch.*, 38. 4), gave a critical review on sympathetic ophthalmia of the publications of the last years and came to

*Read at the Wisconsin State Medical Society June 19, 1895.

the conclusion which Albrecht von Græfe, 1866, pointed out, that an inflammation of the uveal tract is necessary to produce a sympathetic affection. And it is only by the development of *irid-ocyclitis* that sympathetic ophthalmia may be aroused by intraocular tumors, formation of bone in the choroid, incarceration and laceration of the ciliary body or iris, and that this inflammation is due to infection. In subconjunctival ruptures of the globe the irido-cyclitis is to be attributed to an invasion of microbes by minimal lesions of the conjunctiva, or if it sets in later by small defects of the scar, perhaps only abrasions of the epithelium (Wagenmann, *von Græfe's Arch.*, 34. 4). That infection must occur was clearly demonstrated in a case of intraocular cysticercus of Pincus (*von Græfe's Arch.*, 40. 4), which in fourteen years had brought about extensive degeneration of the globe with dislocation of the lens, without disturbing the second eye. After extraction of the lens the wound did not heal well and became infected, producing severe irido-cyclitis and, after eight weeks, serious plastic uveitis of the other eye.

Aseptic perforating wounds, as for instance in operations, heal without reaction, whereas minimal quantities of microbes, brought in contact with them, cause severe inflammations, and this inflammation of the uveal tract represents the relation between injury and sympathetic ophthalmia.

The rare occurrence of sympathetic ophthalmia in *panophthalmitis*, the severest form of infectious inflammation, seems to be in apparent contradiction to these observations, especially since Schmidt-Rimpler proved by cultures the presence of staphylococcus pyogenes aureus in an eye affected with panophthalmitis for four weeks, and Schirmer in a case of metastatic panophthalmitis of three weeks duration. This has been utilized as an important argument against Deutschmann's theory. There are, however, some cases of sympathetic ophthalmia after panophthalmitis observed lately by Schirmer, Scheffels and Deutschmann. The latter (*Beitrage z. Aug.* 10 p. 50) assumes with Leber, that in panophthalmitis the micro-organisms are removed with the flow of pus out of the perforated globe, or are destroyed by the profuse suppuration, and with Gifford, that the lymph-channels become obstructed by the accumulation of puss and fibrinous products, thus impeding the migration of micro-organisms. In those cases in which panophthalmitis creates sympathetic ophthalmia, Schirmer surmises a mixed infection with the hypothetical coccus of Sattler, which ordinarily is destroyed by the more virulent staphylococcus. Deutschmann suggests instead of the coccus any bacterium which is more apt to follow the tract of the optic nerve, than the staphylococcus pyogenes is in man.

Such a mixed infection is also to be supposed in sympathetic ophthalmia after *gonorrhœic* and *tuberculous* iritis, as in all the cases so far published a corneal perforation occurred which allowed the invasion of other microbes.

The sympathetic inflammation of the second eye appears in two forms: Sympathetic uveitis in its various fashions and localizations, and papillo-retinitis. Both may be combined; often the latter may not be visible on account of opacities of the media, especially when associated with choroiditis. Schirmer mentions only five cases in which papillo-retinitis preceded the uveitis, and thinks that papillo-retinitis alone is very rare and gives a much better prognosis than uveitis. Its dependence on the sympathizing eye was shown by the fact, that after enucleation it healed rapidly, though not at once as in sympathetic irritation. From this Schirmer infers that it is produced by toxines, and if caused by micro-organisms the inflammation will spread to the uveal tract.

Deutschmann found that *neuritis and neuroretinitis* of the second eye are more frequent than formerly supposed. The examination of human eyes which have been removed after they had given rise to sympathetic ophthalmia, revealed that neuritis and perineuritis were the rule. The discs of Deutschmann's rabbits were reddened and under the inner medullary stripe four to five yellow prominent choroidal spots of the size of a pin's head owing to circumscribed round-cellinfiltrations of the choroid.

As a typical *ophthalmoscopic* picture of sympathetic ophthalmia, Hirchberg (*C. Bl. F. A.* 1895, p. 80) describes light foci in the periphery, slightly resembling the specific patches, which may also be

observed in the eye first affected. Casper (*Klin. Mon. f. Aug.* 1895, p. 179) saw an analogous condition in a case of sympathetic disseminated choroiditis.

Sympathetic inflammation of the uveal tract appears as iritis serosa, iritis plastica, irido-cyclitis, plastica or maligna, irido-choroiditis, or they may pass from one into the other. All three parts of the uvea are generally affected, as autopsies have shown, but often during life the condition of the choroid cannot be ascertained. The disease mostly starts in the iris, but it may also advance from behind forward. If uveitis posterior or anterior are primary, the explanation by the migration theory is: Through the perichoroideal space, perhaps from the posterior pole of the globe along the sheathes of the long ciliary vessels the microbes or their toxines may rapidly advance to the anterior portion of the uveal tract and display earlier the clinical symptoms, before the process at the optic disc becomes noticeable. The serous iritis is not as malign as the plastic uveitis which shows a tendency to relapses, always leaving the eye in a worse condition than before, and mostly ends in atrophy of the globe.

Sympathetic ophthalmia does not set in before fourteen to eighteen days after the affection of the first eye, generally in four to six weeks. A maximum interval cannot be set down as a rule, but the longer the intermediate time the more the probability, that the disease of the second eye is of an idiopathic nature. A phthisical eye without any signs of irritation does not cause sympathetic ophthalmia. If after several years an affection of the second eye occurs, the first eye has never been quiet, or it shows some recent inflammation, either by a new infection or a revival of micro-organisms, which have been latent like spores, or from time to time increase to such an extent that they cause a new inflammation.

Quite a number of cases are published in which sympathetic ophthalmia broke out within three to four weeks after preventive enucleation, optico-ciliary neurotomy or neurectomy. In two of Nettleship's cases enucleation was performed one to two days after the injury, but the latter had extended also to the orbit and caused inflammation of the orbital tissues, and this gave rise to the sympathetic affection seven and five weeks afterwards. When the sympathetic ophthalmia exists before enucleation even in a slight degree, the latter does not prevent its malignity. It has been anatomically proven, that both ends of the optic nerve after neurotomy become again united and that a regeneration of the ciliary nerves takes place in that way, that from the central stumps numerous twigs grow into the sclera and the sensibility returns. Therefore if the ciliary nerve theory is wrong and the optic nerve exclusively conveys the virus or sympathetic ophthalmia, then, according to Scheffels, (*Klin. Mon. f. Aug.* 1890) an early and thorough resection of the optic nerve must prevent sympathetic ophthalmia in all cases. Should the latter occur only in one case of resection rightly performed, the whole theory of migration through the optic nerve falls to the ground. Trousseau observed such a case of sympathetic ophthalmia with ensuing blindness two months after resection of the optic nerve of 4 to 5mm. length.

Deutschmann, presupposing a reunion of the stumps, considered this question of such principal importance, that he undertook new experiments for its explanation. (*Beitraege*, hft 10). A piece of three to four mm. of the left optic nerve of rabbits, which was 14 mm. long from the chiasma to the globe, was resected, i.e. the 4-5 to 3-5 part of the whole length, corresponding to Schweigger's claim for effectual neurectomy of ten mm. of the human optic nerve, which measures 38 mm. Two months later one animal died accidentally. Immediately after death he injected ¼ of a Pravaz's syringe of India ink into the subdural space of the skull, and 15 minutes afterward India ink was found in the intervaginal space of the whole right optic nerve. The ends of the left optic nerve were connected by a tract of connecting tissue 2 mm. long, in which as well as in both ends India ink was seen down to the globe. His deductions were: Resection of the optic nerve permanently destroys the nervous conduction, but the nerve ends become reunited by connective tissue. It communicates with the central and peripheral vaginal spaces and leads the lymph current from the brain to the bulbar end more slowly and not as readily as in the normal vaginal space, but without essential difficulty" (p. 27). He further assumes, that microbes or their

toxines may proceed against the lymph current from the globe to the chiasma as well as the India ink did with the lymph current to the globe. At the instance of these experiments Wagenmann (*v. Græfe's Arch.* 41, i, p. 182) modified the regular resection by thorough cauterization of the peripheral end of the resected optic nerve in order to increase the protection undoubtedly furnished by neurectomy, but leaves the proof to later experiments. Velhagen (*Arch. f. A.* 29, No. 14) imitated Deutschmann's experiment, but with opposite results. Staining fluid injected 5 weeks after neurectomy into the arachnoidal space under high pressure did not ooze from the central optical stump, which was tightly sealed by cicatrical tissue. He infers from this, that, if the mode of cicatrization in man is similiar to that in rabbits after neurectomy, no micro-organisms from the interior of the globe can enter the central optical sheath after a lapse of time sufficient for cicatrization.

The migratory theory has met with opposition mostly by Schmidt-Rimpler (*l.c.*), who observed two cases of sympathetic ophthalmia, one and a half years after optico-ciliary neurectomy, and mentioned as the chief point, that no micro-organisms were found in the resected piece nor in the globe which was afterwards enucleated, so that no micro-organisms could have migrated to the other eye. Nordensen, Berry, Ayers, Alt, Randolph, Kuhnt, Ohlemann, Greef, Uhthoff, Schirmer did not find micro-organisms in the eyes which had been removed after sympathetic ophthalmia had taken place. Positive in regard to bacteria in enucleated eyes were the investigations of Limbourg, Levy, Sattler, Snellin, Leber, Abraham, Story, Angelucci, Basevi, Secondi, Waldispuehl, Berry, and Finlay, who used Knapp's material. Deutschmann found micro-organisms in all cases observed in three years after publication of his monograph. (Staph. alb., slender bacteria, clumsy bacilli). Cultures made of two cases showed staphylococcus pyog. aur. He does not infer from this the staph. to be the producer, but thinks that the frequency of obtaining the staph. in cultures is due to a mixed infection with this coccus. In regard to the fact, that not all succeeded in finding micro-organisms in the eye which had been enucleated on account of causing sympathetic ophthalmia, Deutschmann 1, questions whether those eyes really caused sympathetic ophthalmia, the diagnosis being one of probability only. 2d, Micro-organisms often cannot be found any more in eyes, in which they effected great changes, creating their own destruction. 3d. In cases of undoubted sympathetic ophthalmia the interior of the injured eye may be free from micro-organisms, although it is infected, but they are found in the optic nerve, in the intervaginal space and on the surface of the globe. From here, *i.e.*, from Tenon's capsule the microbes may enter the intervaginal space of the optic nerve and migrate to the second optic nerve and globe, as demonstrated by recent experiments of Deutschmann, in accordance with Quincke and Zellweger. Deutschmann had used in his experiments spores of aspergillus fumigatus, croton oil, pus, then cultures of staph. pyogen. aureus and albus, and of streptococcus. Alt produced sympathetic ophthalmia, with abrus prægatorius — injections into one eye; Gayet with pus of the tear sac; Basevi with bacilli from enucleated human eyes, which had given rise to sympathetic ophthalmia; Parisotti with staphylococci. The only track (also found by Gifford) between both eyes, which contained continuously the inoculated bacilli is the intervaginal space of the optic nerves and their sheathes. Deutschmann had in his first series of thirty-five experiments twelve positive results, *i.e.*, thirty per cent.; of the last thirty-five only two; and considers it as experimental luck to obtain positive results, emphasizing the rare occurrence of sympathetic ophthalmia even after severe infections of human eyes. Ohlemann found of 556 severely injured eyes of Schweigger's clinic only two which had given origin to sympathetic ophthalmia.

The objection has been made that the presence of cocci found in the optic nerves, the sheathes and in the intervaginal spaces was due to a general infection. But no observer ever found micro-organisms in the optic sheathes of patients or of animals, who had died from a general infection, and Deutschmann is of opinion, that if it ever should happen, which, however, is not probable, as then the staph. pyog. would be propagated by the blood vessels, not the lymphatics, they would be found perhaps in single foci, but not in continuous

accumulations pervading the whole optic sheath, as in his animals.

Schmidt-Rimpler's theory of sympathetic ophthalmia is, that the irritation of the ciliary nerves of the injured eye gives only the disposition to sympathetic inflammation of the second eye by reflex disturbances of circulation and nutrition. The longer and the more marked these changes exist, the more and better prepared is the eye for the action of inflammatory (bacterial or chemical) agents. But there is no proof that mechanical irritation of the ciliary nerves causes inflammation of the second eye, (if there is no infection combined with it,) as incarceration of the iris in corneal or scleral wounds, or chronic glaucoma in which patients suffer from the most violent irritations of the ciliary nerves, or as the case of Pincus, (*l. c.*) in which an intraocular cysticercus kept up constant irritation of an eye for fourteen years, without creating sympathetic ophthalmia before the infection by the operation happened.

The *migration theory* explains best the long interval between the injury and the outbreak of sympathetic ophthalmia, as the microbes require some time to travel from one eye to the other. If sympathetic ophthalmia sets in three to four weeks after enucleation, the microbes had left the first eye at the time of enucleation, and are on their way on the optic nerve to the second eye. Deutschmann adds to his experiments a description of a case which furnishes the most valuable proof for his migration theory. After an iridectomy, which by infection terminated in phthisis bulbi, sympathetic ophthalmia of the other eye started with neuro-retinitis, afterwards opacities of vitreous, ciliary injection and irido-cyclitis, resulting in almost total blindness. The patient died of carcinoma of the stomach. Micro-organisms in both eyes, chiasma and both optic nerves showed that the optic nerves furnished the passage for their transmission. The micro-organisms were bacteria, the species of which could not be ascertained.

Hirschberg (*l.c.*) supposes a creator of granulation tissue (bacillus), as the anatomical examination of recent diseases of the injured eye shows a similarity with tuberculosis (giant cells, granulation tissue) and not the cocci of suppuration. It requires further investigations to determine the producer of sympathetic ophthalmia.

All authors, even those who do not accept Deutschmann's experiments as convincing proof in regard to the way of propagation, consider the sympathetic ophthalmia as an infectious disease, so that it will express best the present state of the pathology and etiology of sympathetic ophthalmia, if we quote Deutchmann's conclusions of his latest work (p. 95:) "Sympathetic ophthalmia, as it was called, is a process of microphytic origin, propagated in the continuity of tissues from one eye to the other by the optic nerve; exceptionally a chemical action may be communicated from one eye to the other on the same track." He suggests instead of sympathetic inflammation, a name designating the disease better: ophthalmia migratoria.

HYSTERIA*

CHARLES G. STOCKTON, M.D., BUFFALO, N. Y.

There is nothing of special interest in the previous personal or family history of this patient. She is a girl of eighteen years, who was brought into the hospital as the result of an accident. She arose one night to quench her thirst and drank from what she supposed to be a glass of water, but which in reality contained a large amount of laudanum. The effects of the drug were almost immediately manifest, the alarm was given, the ambulance surgeon was summoned, who gave an emetic and emptied her stomach so promptly that she showed no very serious results of this accidental poisoning, al-

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though she had swallowed enough laudanum to have balanced her accounts then and there. She was brought to the hospital suffering chiefly from shock and nervous excitement and is now recovering from them.

You will ask, then, what there is about the case of interest. As the result of this shock and the fear of death, the girl has developed certain functional nervous symptoms which are characteristic. Her manner became somewhat excited, her behavior somewhat unnatural, on her body were areas which were highly hyperæsthetic and certain other areas which were anæsthetic, the anæsthesia affecting in particular one side of the face. In a case of this sort, with the history of poisoning and the development of nervous symptoms one might be led astray were it not for these particular symptoms of anæsthesia and hyperæsthesia. On the left side of the forehead she says she feels nothing at all, although as you can see, I prick her so deeply that the pin hangs in the flesh. On the right side she feels perfectly. When I examined her in the ward two days ago, it was the right side that was anæsthetic while sensation was normal on the left side. Now, as I rub my finger over the right conjunctiva she does not feel it, nor did she at the previous examination. This is, therefore, not a case of unilateral anæsthesia to-day, although it was when I examined her in the ward. I am glad that this fact has been brought to our attention for I might otherwise have given you the impression that such anæsthesia or hyperæsthesia was always unilateral, as is often the case. The left conjunctiva seems perfectly normal in sensation, although the left side of the forehead is anæsthetic. Sensibility is good in both hands. I just touch the back of her neck with the pin but she complains of pain, showing that there is hyperæsthesia at that point.

This disease—for the condition is truly a disease—is illustrated in the patient in a light form. Her symptoms have been limited to a varying anæsthesia and hyperæsthesia and a general excitement. This disease may be marked simply by the latter symptom or by a flood of tears, an uncontrollable fit of laughter, or, it may be, by persistent vomiting, by constipation, by the voiding of a large amount of pale urine, sometimes even gallons being passed in the twenty-four hours. Sometimes it is manifested merely by excessive sweating, perhaps limited to one part of the body. There may be coldness, or a local or general increase of temperature: for example, I have known the temperature of the body to be raised to 114° F. with no other cause than hysteria. These manifestations may last for a life-time or may subside. A little while ago I showed you a girl who had suffered from a brutal attack by her husband. She came here supposed to be affected in the brain or spinal cord, for she had a right hemiplegia without, however, disturbance of speech. She made a good recovery with no medication save the injection per rectum of asafœtida in large quantities and by a little mental treatment; insisting that she could walk, helping, encouraging and urging her to do so. She lost her temper one day without any reason and left the hospital on foot.

The paralyses which occur in the course of this disease are sometimes very permanent, sometimes accompanied by convulsions; or there may be convulsions without paralysis. Marked psychic disturbances may occur, such as delusions, hallucinations, mental perversions or peculiar disturbances in which the patient goes into the condition known as catalepsy. Such patients are apt to be sleep-walkers.

For this mild case, I shall prescribe asafœtida. The simple nervines like asafœtida and valerian with such tonics as phosphorus, arsenic and iron are usually all that are necessary but, at the same time it must not be thought that the trouble is a trival one simply because its essential element is the lack of power to control the nervous system. If the asafœtida cannot be administered by the mouth, we will give it by the rectum, using four ounces of the mixture at an injection. It should be introduced through the flexible tube with the patient lying on the right side so as to have the fluid gravitate into the tranverse colon. If the large quantity is not retained, we can use an ounce or two more frequently. We might give half an ounce of mistura asafœtida by the mouth, or we might give the pill of asafœtida and soap in ten grain doses three times a day. A good treatment for the control of violent patients is the injection into the bowel of chloral and asafœtida. Chloral is the best

drug for the immediate relief of the more acute attacks of this disease when there are convulsions or violent behavior. Chloral, however, is not a safe remedy to continue because it is too depressing. Valerian, asafœtida, sumbul and other drugs of this class may be kept up indefinitely without harm, so far as I know. The use of the cold bath, especially of the cold spinal douche, of general faradization or of static electricity may be indicated. Along with these methods of therapeusis, there is need of psychical treatment, not allowing too tender or too harsh usage at home, neither ridiculing nor expressing too great sympathy for the patient, but enforcing a somewhat rigid and, so to speak, tonic mental treatment. Unfortunately, cases of this disease occur most frequently in the ignorant and in those in the lower walks of life, in persons whose mental and moral training is not of the highest kind, and whose minds are easily unbalanced by unnatural excitement or by some trivial occurrence. But although these are the persons most commonly affected, we may find hysteria in any walk of life. When it occurs in persons apparently so situated that we would expect them to be free from it there is usually a neurotic element in the family. There may be the history of insanity, of epilepsy, of chorea, or of sleep-walking, nightmare, or some other curious nervous disturbance; possibly that which goes by the name of neurasthenia.

CHOLERA INFANTUM.

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The summer season in this part of the country is usually productive of results in the bowels of our babies. Civilized babies seem to catch it. There are several hundred Crow papooses in this neighborhood, who murder all hygienic rules in cold blood and yet live. Whether the natural food supply runs short often, or what patent foods the baby of the aborignal mother gets, is not known to the writer. Somebody with a scientific eye and a nose for medical news, might find a broad missionary field on the Indian Reservations of the West.

The white or black baby usually has an attack of cholera infantum when the temperature shows a sudden fluctuation. Probably the coming medical man will know when to exect this kind of practice by watching the Signal Service flags. If heat is a causative factor in infantile diarrhœa, the artificial heat obtained from stoves and flannels, ought to have an influence, something like the suns rays.

Why the bacillus should contaminate a clean healthy nipple is not easy to explain, but we see the sucker getting sick and we blame the suckee. First comes a loss of appetite. This symptom is not often recognized by the proprietor of the baby. The habit of having the nipple exercised becomes chronic and the breast or bottle works on the mind. The child then is the victim of its environment. Its food is literally forced down it's throat. Flatus, colic, peppermint, vomit, diarrhœa, doctor, are so many steps in the evolution of summer complaint.

When the medical man takes charge of the case he is liable to find a patient with a high temperature, disordered stomach and digestive apparatus. Peristalsis may be so vigorous as to cause hemorrhage from some part of the tract. Where it comes from is not so important as to get control of Auerback's ganglion and apply the cardinal rule of surgery: rest to an inflamed surface.

Examination of vomit and fecal matter will give us a clue as to cause and treatment. Undigested particles of food, the presence of bile and mucus, the revelations of the microscope give us warning to get rid of as much of the foreign substances as soon as possible. Mechanical means are here very valuable. If the mucous membranes could only be reached from the outside somebody would likely suggest

iodoform dust. Calomel is universally supposed to be as big a germicide as iodoform, and it is prescribed for its effect on certain ducts. Why should it not have the reputation of a sort of internal iodoform.

Warm normal salt solution is prescribed for lavagé of the stomach. This is usually recommended and described as an operation easy of performance. While listening to the lecture of a professor of the healing art, students should remember that skill must be tempered with experience before it is very easy to resort to such measures as turning, application of forceps, intulation, lavage. Where lavage is used it should be performed thoroughly and repeated as often as necessary. With the aid of a cork and by keeping the catheter against the posterior wall it is likely to slide into the stomach without being oiled. When the water returns clear, it is supposed to have done its work. If it is thought that a warm bath will have a needed physiological or therapeutic effect, keep it up for a little longer time.

Both ends of the digestive tract need irrigation, and two quarts more or less of the same normal salt solution slowly introduced though a catheter into the colon and allowed to run off, will do much toward removing irritating matter and soothing a sick membrane as well as a badly starined nervous system. If food is prohibited now the patient ought to sleep. It is better to give spoonfuls of hot or cold water than milk for a day or two after lavage. The child was using milk when it was taken sick, we will say. Do not resume the milk feed for several days, but try to worry along with broth, gruel, meat juice, little chunks of ice.

Thin stools do not indicate so much damage to the digestive function as some people suppose. The anatomical construction of a child's alimentary tract would seem to make them a necessary evil.

High temperature can best be combatted by using water to the child's skin. The antipyretic treatment by drugs is dangerous. A medical conscience which is not troubled by the effects of coal tar derivatives and opiates is a good one. Water used on the outside will meet all the indications for temperature reduction, and opiates must be used where there is pain. Every physician should become an expert in using the preparation which serves him best. If the child is placed in a bath heated to a few degrees less than 100° F., he can be kept there for less than ten minutes, while the water is gradually cooled to not less than 65° or 70° F. Holding ice in the bottom of the tub and agitating the water will distribute the frigidity properly.

In a territory where the sea shore or lakes cannot be reached, a child is often given a new lease of life by taking it on a camping trip to the mountains. A lower temperature is the desideratum, and if it can be obtained, it will be like the continuous antipyretic effect of the bath. What effect a difference of a thousand feet in altitude has on summer complaint is a question.

Artificial feeding must frequently be resorted to, also the artificial introduction of medicines. It is like trying to make water run up hill to nourish a patient by the rectum, but it beats starvation. The administration of medicines by the rectum is still more unsatisfactory. There is no way of estimating how much is taken up, and it is always dangerous to exceed a certain dose.

Hypodermic medication in children is not as reliable as it might be, although most everything has been tried, even to apomorphia in croup. Rice and barley gruel are administered by the unnatural method: So is oatmeal gruel where constipation exists; also the juice of broiled meat, squeezed through a lemon squeezer, in teaspoonful meals. Raw eggs beaten up in water. A good way to beat the eggs is in the ordinary milkshake. The solitary advantage of rectal feeding is the absence of taste in a human being's latter end.

Where the patient has reached the stage of the disease requiring heroic measures, such as stimulation with alcohol, the giving of medicine is like a leap in the dark. Too much credit which belongs to nature, is often stolen by drugs. Hot water to revive a failing circulation is often called for. Musk and gum camphor in glycerine, spirits of camphor hypodermically, nitrite of amyl, and even hydrocynic acid have been recommended.

An antiseptic is useful internally. What, and how to give it has puzzled the elect. There is a great gulf fixed in therapeutics between sulphite of soda, and

bichloride of mercury, and yet both are recommended. Chemical changes in the intestinal canal may make the latter valuable, in addition to its hepatic stimulant effect. Sulphite of soda is what we might call a harmless antiseptic. It is prescribed between doses of bismuth and pepsin. A single remedy, to fulfil all indications, is betanaphthol-bismuth. Where food by the stomach is withheld, pepsin or any other ferment is a gratuitous insult to the sick organs. The absorption of food by the lower end of the intestinal canal is an enigma. Food taken into the stomach is not fit to nourish the body until the changes effected by digestion are accomplished. How then can raw food be of value in the rectum?

When atmospheric heat and septic material have been ignominiously defeated by medical science, the patient may be in a serious condition. The intestinal walls may still secrete pathological mucus. There may be too much milk and water bile in the stools, blood may be found mixed with the fecal mass. Astringent medication may be called for, but the tonic effect of medicines aimed at the central nervous system will also do good. Fowlers solution is reliable, malt and coca wine sometimes acts nicely, if it does not aggravate the diarrhœa. Treating the vomiting is unsatisfactory. If a reliable remedy such as creasote does not arrest it, the best thing to be done is to let the stomach alone. Sterilizing milk is not of very much value after the disease is started. It is likely to upset the stomach. The better plan, if you are going to risk giving milk, is to get a fresh supply from an uncontaminated source. This is not a herculean task in such a high dry, cow country as the Yellowstone Valley. In cities where the real name for milk should be slowpoison, the matter becomes serious.

Nursing mothers often make their babies sick. Women with rheumatism, uterine discharges, tuberculosis, syphilis, gonorrhœa should not be allowed to infect their offspring. If serum therapy ever reaches the point where an antitoxine can be injected into the mammary gland before the child takes its food, some miraculous cures of infantile bowel complaint will be reported.

COMMUNICATIONS.

THERAPEUTICS OF HEART DISEASE.*

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Gentlemen of the Cleveland Medical Society: If any unfortunate skipper ever took with him a load of coal to Newcastle, before he had time to unload his cargo he probably felt very much as I do to-night coming before you, for I am not at all sure that I know as much about the subject that I am to speak of as many of you do. And I am very sorry that I was not prepared with a series of thorough doses of Indian hemp that I might hypnotize you into comfort and peace during the administration of the nauseous dose that I am about to give you.

I want to talk to you, nevertheless, concerning a disease which, as you know, is everywhere prevalent throughout the civilized world. And I propose first to carry you back to the days of my childhood, and one of my first patients (an old lady, probably 85 years of age, who had many a time sat upon the lap of Washington) who was redolent with the memories of Physic and of others of the older day medical men of Philadelphia; and who taught me this great lesson: that it is possible, with

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a very small amount of valvular integrity, to pass through a long life of labor and usefulness.

Now when we come to the why of this thing we can go back to our early childhood days and remember how in the frosty mornings we crawled out of bed and ran to the old pump under which we washed ourselves. We had to redouble our strokes in order to keep warm. And this is what the heart does; and it is what we call compensatory hypertrophy. Almost all your practical skill in treating a disease of the heart must rest upon practical skill in deciding, not whether this valve is diseased, or that valve is diseased, but whether the increased power of the heart has or has not kept pace with the increased work required of the heart.

And here I want to say a word in regard to this question of diagnosis. There are some who think that when the aortic valve is diseased, you should never give heart tonics or heart stimulants; that digitalis is not indicated. Not so, gentlemen. The aortic valve is no different in its functions and its relations to drugs than the mitral valve. It so chances that the mitral disease is commonly produced rapidly during youth, and the aortic disease comes on slowly during age, and in the one case the heart is more prone to be unable to adjust itself to the new conditions, and you get cardiac weakness.

It is not a question whether this valve be diseased or whether that valve be diseased, but it is a question of the relation between the work and power.

We want, then, always in every case of heart disease, from the very beginning to guard against this failure of development of compensatory hypertrophy; but before taking up the subject of drugs and their uses in failing heart, let me say a word to you in regard to the effects of failure of heart power. Where does the strain come, or where is the lack apparent? When the heart fails the blood fails to be in the aorta and its tributary vessels; and when the aorta fails and its tributaries are empty the veins are full, and consequently you may take for a sign of failing heart that there is over-venous repletion of the skin, congestion of the lungs and liver and edema of the extremities.

Now I want to call attention to this fact, that it is the liver among all organs, next to the lung at least, that feels this excess of blood in the venous system. Engorgement of the portal circulation is present almost always in every case of heart disease. It is largely for this reason that mercurials are of the value that they are in heart disease. And if I have had any special success in the treatment of this class of cases, it is because I have recognized the value of mercurials. Mercurial purges and corrosive sublimate given in long-continued small doses are of the greatest importance. The fiftieth of a grain, or the sixtieth or even one hundredth of a grain of corrosive sublimate, given with the tincture of the chlorid of iron will sometimes effect almost a revolution, aiding your true heart tonics in the most remarkable manner; aiding, so to speak in the digestion and absorption of the medicine.

I want here also to force upon your attention the necessity of cardiac rest. There has grown up a wide school of therapeutists in Germany who teach that we are to cure heart disease by cardiac gymnastics, climbing mountains, etc. Gentlemen, the heart is an organ that never rests under any circumstances, and do you believe it is common-sense teaching that you can take an organ that has had no rest and is exhausted, and build it up by piling on to the load which nature has put upon up? Not so. Did you ever notice the difference between what we call a fat American or Englishman, and a fat German of the better class. The American or Englishman could walk eighteen hours through the snow, climbing mountains. His paunch might be larger than necessary for anybody to carry, but his arms and legs are iron. But take the fat German, he is usually all fat and beer. In the German mountain cures it is not the extra work put upon the heart that cures, but it is the extra work put upon the muscles of the body that cures. Such cases are not instances of genuine failing heart.

Another set of cases are cured by the mountain treatment. These are the cases with a heart working irregularly because the blood is loaded with uric acid derivatives, or uric acid-like compounds.

But you take a spare American with bad heart and you put him up the mountains, and you ought to put the lid on the coffin so he could carry it up and bury himself.

Leaving these means, which seems to me of great practical importance, I come to ask your attention to the drugs we have to use in cases of failing heart. I have studied adonidin, cactus, convallaria and other of the newer remedies, and I do not think they have real value. I have never seen, myself, any good result obtained from any cardiac drug whatever that could not be obtained from nitro-glycerin, strophanthus and digitalis; and I never had any satisfaction whatever in the treatment of real downright heart trouble with any other cardiac drugs than these three.

First nitro-glycerin. Nitro-glycerin lays itself aside from the two other cardiacs or cardiac drugs, in the fact that it dilates arterioles, and lowers arterial pressure. More than that; nitro-glycerin probably has a powerful momentary stimulant influence on the heart muscle; but if one passes over in the slightest degree the dose, the stimulant action passes immediately into one of immense depression; kill the animal with nitro-glycerin and its heart is relaxed as a wet paper bag; kill the animal with strophanthus or digitalis and its heart is spasmodically contracted.

Then, again, remember that nitro-glycerin, like prussic acid, acts only for a few minutes. The profession has been giving prussic acid for years, three or four times a day. Now, it is a well-known fact that if a man takes a fatal dose of the acid and survives thirty minutes he almost invariably gets well. All symptoms are usually gone in twenty minutes. A fatal dose may show no influence after twenty minutes. How much influence will there be in two hours, from a dose that at no time has caused any demonstrable effect? Now, it is very nearly so with nitro-glycerin; and therefore if you are going to use nitro-glycerin at all, use it in small doses and at very short intervals. It is only valuable as a momentary pick-me-up, to the heart. It is only useful in the crisis of the attack, and is especially efficient if the attack takes the form of angina pectoris. How it acts I do not know. It is very possible it may be by relaxing spasm, rather than by stimulating the heart.

And now let me call your attention to strophanthus. Strophanthus is a drug which is used in the chase. I believe it is true that every drug used in the chase of animals by savage peoples is one that acts either upon the nerve or muscle, the reason being that the man who chases an animal wants to get him, and wants to use something that will stop him from running away. Strophanthus is a muscle poison. It only acts upon the heart as it acts upon the other muscles, but it so happens that in man the heart muscle is more susceptible to its influence than are the voluntary muscles; and so in human medicine we are able to get a stimulant effect on the heart before we get it on the other muscles. It is a drug, therefore, that acts directly as a stimulant to the heart muscle. But there is no reason to think that, like digitalis, it acts further as a tonic than as a stimulant. Then, again, the muscle of the arteries is acted upon by strophanthus and so it contracts the arteries. It increases arterial pressure, it empties the veins and fills the arteries. It differs, further, in its action from digitalis in being more distinctly diuretic; it is much more prompt than digitalis, acting at once; it is much less permanent than digitalis.

Let us now study digitalis, which, always in proper doses elevates the arterial pressure. How? It does it in the first place by contracting the arterioles. It narrows the bloodpaths, it lessens the amount of blood space to be filled. It does this in a two-fold way; by stimulating the vasomotor center in the medulla; by acting on the arterioles themselves. Take a terrapin, cut out its nervous system, leave its heart intact; or cut out its heart, then put your fluid under pressure into the arterial system and have it come out from the vena cava. Add a little digitalis and it almost arrests the flow. It contracts the capillaries directly. But it acts upon the heart more powerfully. Every one knows the full strong beat you get from the drug Especially do not forget that it stimulate. the pneumogastric nerves as well as the heart muscle. It lengthens the interval between the beats. When that beat comes it is a great mighty throb of blood. But digitalis is more than a stimulant to the heart. You take a heart which is beating one hundred and ten to one hundred and twenty times a minute. The veins are everywhere full, the aorta is empty. The diastole has not been long enough for the heart to expand and receive the blood. The heart is continually irritated by impulses coming up from every part of the body crying, Give us more blood. You

give that heart, digitalis. You quiet it, you take off its nervousness, you get the long diastole, you get the powerful systole; so there comes a great wave of blood through the arteries. In the failing heart the coronary artery gets little or no blood. At the very time when the heart is being overworked and overworried it is starving. But when the great wave of digitalis action comes, it swells out the aorta, it fills the coronary artery, it goes into every part of the heart, it brings sustenance and food. The old effete material that has been clogging the heart walls is also squeezed out by the powerful contraction of the muscle. Thus digitalis acts as a heart tonic, but it does more than this.

Gaskell has proved that there are two functions or stages in the heart life. What is true of the heart life is true, I believe, of every portion of the human body. A period of functional activity and structural down-tear alternating with a period of functional rest and structural up-building. During diastole of the heart there is no functional activity; relaxation. During systole there is functional activity. During systole this functional activity is accompanied by destruction of tissue. During the period of diastole, or of functional rest, every force in the heart is given to repairing the ravages of function, and there is restoration and up-building.

Now, it is the pneumogastric nerve that occasions the inhibition or stopping of functional activity in order that the structure of the heart, which has been worn, may be up-built. My own belief is that every portion of the human body has behind it this principle. The spinal cord has its inhibitory centers. Every nerve cell has above it a higher nerve cell that inhibits it. However this may be, during diastole the pneumogastric grasps the heart firmly and says to it, "Let the workmen build up the ravages in the walls."

Digitalis has the power of stimulating to a point of intense activity the pneumogastric nerve. Expose a frog's heart, give it digitalis, and you will see the strange fight for mastery between the irritated pneumogastric nerve, and the irritated heart muscle. Sometimes the digitalis arrests the frog's heart in diastole. It never does this after section of the pneumogastric nerve. It is when the pneumogastric nerve gets victory over systole, that there is arrest in dilatation. Now, don't you see how digitalis acts in failing heart? Not simply as a stimulant but also as a tonic. It brings food to the heart at the time of its starvation and overwork; it squeezes out of the heart muscle the effete matters which have been lying there; especially does it stimulate the pneumogastric nerve, the trophic nerve of the heart, enabling it not only to quiet the heart into long diastoles, but to hasten during these periods the up-building of the heart structure.

Every now and then in our hospitals we see a case of heart disease in a poor man who has had no rest and no medical treatment; the heart seems hopelessly feeble, but a short course of digitalis brings not only immediate relief but seems to lift the whole man up to a higher plane. It is because the digitalis has really helped the trophic nerve to use the food which has been given to the heart by the use of digitalis to the restoration of the structure which was almost destroyed.

Before applying these considerations to individual cases, let me say a word or two about the preparations of digitalis. It does not make any difference which preparation, provided it has been made from a good drug. I speak now of the officinal preparations of digitalis. Digitalin is always a doubtful theme. Of two specimens one will be soluble, one insoluble; one is called the French, the other German. Digitalin is not of the nature of the active principle. It is a mere extract of digitalis more or less purified. There is a wide-spread belief that the infusion of digitalis is better than the tincture. Not so, gentlemen. The reason of the belief is that proportionate doses are not used. Commonly, digitalis tincture is given in 5 to ten drop doses, the infusion from a teaspoonful to a dessert-spoonful, which is equivalent to about 20 to 40 drops of the tincture. Results are obtained from the infusion because it is given in larger doses.

Sometimes you will find a stomach that the infusion will agree with better than the tinctures. Sometimes one that the tincture agrees with better than the infusion. Practically there is no difference. Again, the tincture of digitalis lends itself fairly well to hypodermatic medication; infusion you can not use.

I do not propose to occupy your atten-

tion at all with discussing the ordinary use of digitalis in heart disease. Only to call your attention to certain points. First let me say a word in regard to its employment in acute endocarditis, acute heart disease. Early in the case, digitalis is very rarely indicated. It is more apt to do harm than good. The heart is already in a state of irritation. There are some cases of endocarditis—septic or malignant endocarditis—in which it does not make much difference what you give. But in ordinary rheumatic endocarditis, digitalis does harm. The heart is not weak but overirritated. Usually tincture of aconite and similar drugs are what you want to try. But when the storm has gone by, the only salvation for the stricken child is the upbuilding of that heart into a great powerful organ that shall enable it to overcome the leak that has been left in the valve. There is no power to repair that valve. There is no rag that we can push or stick into that broken space. There must be increase of power, and so under these circumstances, so soon as the acute disease has passed by it is absolutely important to begin the use of digitalis in small doses continually, given with great watchfulness. Recollect here, as in other cases, that when you give digitalis you give a drug which has a persistent influence. The moment you get the slightest effect that moment you stop the drug, for you know that effect will last hours, perchance days.

Passing by the ordinary use of digitalis, let me call your attention to its administration in large doses. And here I beg of you not to misunderstand me; I do not mean to say that the doses of digitalis I am going to speak of are to be used in the ordinary cases of heart disease. But there come times in the life of almost every case of heart disease when the heart fails to respond at all to the moderate dose of digitalis, and when the large dose of digitalis will have a most pronounced and beneficial effect upon it.

A case happened to me two or three months ago. I was sent for by Dr. S. to see a case in consultation. The man, 76 years of age, had one pleura two-thirds full of water. His pulse was, as far as one could count it, 160 to 170 a minute. It was a mere broken confused jumble of pulse beats. The man had been sick eight weeks without conscious sleep; sitting up struggling for breath.

"Doctor," said the physician in charge, "I sent for you to back me up in tapping this pleura."

"I don't think that pleura ought to be tapped. However, I will back you up in doing it, provided you tell the wife of the man that he is liable to die during the operation." This was done and the wife said, "Then he had better die without operative procedure."

"Now," I said, "let me try digitalis. Give that man 40 drops of digitalis now (6 o'clock), give him 40 drops at 8 o'clock, 40 at 10 o'clock, and then hold off."

I went there the next morning. The old man had slept soundly the whole night. Had begun to urinate freely (he had had nearly complete suppression), and his pulse was down below 100, perfectly regular. The result was that the man came down to see me in my office not many weeks afterward, and has been going about apparently in good health ever since; of course with a diseased heart.

There are cases in which you have to keep these doses of digitalis up. There is a certain large graveyard in the suburbs of our city. Years ago when I had worked out these thoughts to my satisfaction, I was sent for by an old German doctor, to take charge of a patient whose window overlooked this graveyard, while he went on his vacation. The lady was sitting up in bed or on a chair, in perpetual horrible orthopnea. This old German was a very plain-spoken man. I asked if I might try the use of very large amounts of digitalis. The doctor explained my wish to the patient, saying: "All right, Sarah, what the devil is the use of your sitting there for weeks? This young doctor says he will either put you in the graveyard, or get you down stairs. You had better be in the graveyard than as you are, so you had better let him try."

She said: "Very well. I would a good deal rather be in the graveyard."

I gave her about two teaspoonfuls of tincture of digitalis a day. She was down stairs in two or three weeks.

Not long after that I had another case. A banker somewhere from the West. He had been taken acutely ill, or rather chronic disease blossomed out in full while he was attending to some business in the East. He had been under homeopathic

care for three or four weeks in perpetual orthopnea. I put him on enormous doses of digitalis, and the result was that in one or two weeks he was able to go home

Now, gentlemen I mention these cases to you, not simply as examples of the results that can be obtained by large doses of digitalis, but to point out to you a further lesson.

The ending of the first old gentleman has not come yet. But it so happened one day in the course of some months after, the woman whom I put upon the digitalis had been going about attending to her household duties and she went to market. Returning with a light basket in her hand she fell dead over her own lintel. And the banker from the West went back to his office and gathered together the gold, but it so happened one day that as he was reaching forward to put his clutch upon the yellow coin he fell dead across his counter.

Some would say it was the digitalis killed them. But such is not the truth. It is not digitalis that arrests that heart. It is the power of digitalis to quiet the nervous condition of the heart: to feed up the heart as far as may be, to keep it going as long as it can, until at last there comes a time when there is not one grain of power left in the heart. When the power had all gone out of the banker's heart it ceased. That is the effect of digitalis. When you venture to give these large doses of digitalis in the treatment of cases of heart failure, tell the patient, or at least the friends of the patient, that this thing will come. Remember, the patient will live longer than if left to himself. It is better to live months of comfort, and perhaps a year or two, and then drop dead in the harness, than to struggle in agony for a shorter period.

A few words in regard to the so-called cumulative action of digitalis. Digitalis may be given through a length of time and suddenly there comes an explosion of its action. I remember a case of pleurisy I had. I was using digitalis to stimulate the kidneys and get out the fluid. I went there on Sunday; the pulse, which had shown no effect of digitalis, had fallen from 106 to 80. I stopped the digitalis. Monday the pulse was 70; Tuesday the pulse was 60; Wednesday the pulse was 40; Thursday the pulse was lower still, and I began to wonder what the pulse would be on Saturday. But when the pulse got down somewhere between 30 and 40 there it stopped, stayed so three or four days, and then came up.

I have never yet seen but one case hurt by the use of digitalis, and that was a case of mistaken diagnosis. A lady had been under the care of two or three of the best doctors in Philadelphia; was supposed to be dying. I was sent for and she was placed under my care, as her husband did not believe in consultations. She got worse. I kept on with the digitalis until it suddenly occured to me, This is a case of digitalis poisoning. I stopped the digitalis and she began at once to come up. I never told my secret and she thinks I am a great doctor. There was no true heart failure; only neurasthenia, from gastric catarrh.

This cumulative influence comes on at certain times: first place, when the drug fails to act upon the kidneys; second place, when it is already in the body. You have a case of dropsy; you tap—reduce the pressure. Instantly the blood vessels take up the serum; that serum is loaded with digitalis. Then comes digitalis poisoning. It is not the drug that is in the body, but the drug that is in the blood that affects the heart.

A practical induction is: When you expect to tap a man suffering from heart disease or from any form of dropsy in which you have been giving digitalis, cease your digitalis for a length of time before you tap him.

Years ago I noted one class of seemingly incomprehensible cases. Cases of mitral valve insufficiency; in which the heart seemed to be in the last stage of weakness; cases where I said to myself, "This man will be picked right up by digitalis." But when I gave the digitalis there came increased heart dullness, and an anginous horror that instantly demanded the withdrawal of the drug. I was sure that I was right in my diagnosis that the heart was weak and failing. I was sure that I was right in my physiology that digitalis was a heart tonic and stimulant. But when I put the two things together they did not work. The cases always went from bad to worse. At length I worked out the problem. The cases were, all of them, cases of mitral insufficiency, and they were really cases of exceedingly weakened

auricle; an auricle that was toned down and thinned out until it was little more than the thickness of paper. Now, under the influence of digatalis there came back a reflex wave through the mitral valve and that met the blood pouring in from the pulmonary veins. The thin, paper-like auricle could not stand the double pressure. It could not stand the strain of the blood pouring in and the blood pushing back through the insufficient mitral valve by strengthened systole. Whenever this condition exists nothing can be done. It is the shadow of death, and death very near at hand.

Digitalis has been much used in treatment of aneurysm. Gentlemen, it is death in aneurysm. The reason surgeons have not killed more cases of aneurysm is because they do not use digitalis in large enough doses to have any effect. Digitalis is the most dangerous drug known in aneurysm. You give a certain amount of strychnin, or a certain amount of atropin and get, let us suppose, 20 per cent. of increase of arterial pressure; but the pulse wave is small. Digitalis puts up the arterial pressure 20 per cent. but it does more than this. It makes a long diastole. It makes a great wave of blood; not a little tiny thread, but a great mass of blood rushing with full force down the arteries, coming into the chamber enlarged by atheromatous degeneration, stretching and tearing everything before it. It is the immense distension due to the large blood wave under the influence of digitalis which makes the drug especially dangerous. This is not merely theory. Some years ago a man was picked up in the street and brought into the hospital. He had a pulse you could scarcely feel; temperature 4 or 5 degrees below normal. I ordered digitalis to be freely given. At my visit the next day the man was sitting up enjoying himself, talking and laughing. I put my hand on his pulse and I got the tremendous big strokes of digitalis. As I was directing that the digitalis should be stopped, the man sprang with a great cry up into the air; there came a crimson flood from the mouth and nose, and the man dropped back dead. That man had an aortic aneurysm; we had ruptured it with our digitalis. At the autopsy the aneurysm was found torn right across. Gentlemen, when you have an aneurysm to deal with, don't use digitalis.

Let me speak of the contrast between digitalis and veratrum viride in the treatment of pneumonia. You have a case of pneumonia in the first stage. You give veratrum and you lower the heart action. More than that, you open out every blood vessel in the body. Here is the blood in that lung in excess. You can put the whole of the blood of the man in the addominal vessels. You take away the blood from the lungs and put the whole body upon one plane of dilated arterioles, so to speak. That is what veratrum viride does in the beginning of pneumonia.

If you have a lung in a man in which the general system is adynamic, you can get at the same result in a different way. You have general relaxation. Now you give ergot freely, which contracts the blood vessels and brings about the same result by contracting the blood vessels in the lung and the whole body.

Digitalis comes into use in pneumonia in an entirely different stage. How does that man die in advanced pneumonia? Very often from paralysis, exhaustion or arrest of power of the right heart. What is the reason? Because the right heart, heated almost to death by the fever, has to force blood through paths narrowed by the pressure of the exudation upon them. You give digitalis; it stimulates that right heart. It does not cure the pneumonia but it keeps the right heart up to its work, and by and by the pneumonia subsides.

In regard to the use of alcohol in etherization. Some years ago there was reported a case wherein a woman had cardiac failure from etherization, and brandy was given her. Six or eight hours after the etherization she died of heart failure. Is this wonderful? This woman had a pint and a half of brandy; that, not the ether, was the cause of death.

What is the difference between ether and alcohol? Only a little water; physiologically there is no difference. Then, again, you might as well give ether as alcohol to a failing heart. This is not mere theory. Test it on the animal. As you give alcohol, less ether is required.

By no dose of alcohol, internally or hypodermically, can you bring up the artireal pressure of the animal poisoned by ether. You might as well give hypodermic injections of ether in the failing heart of etherization. There are surgeons fatuous enough

to do even this thing. Gentlemen, dose it make any difference to the heart whether a drug which is in the blood has been picked up in the left leg or the right leg, in the lung or in the buttock? Is the heart a sentient being that it can tell where the blood got the ether? Why not crowd the ether on the sponge and give it to the man by the mouth. Sometimes these hypodermic injections do *seem* to arouse the patient. It is because they are a local irritant and reflexly excite the heart, the same as holding ammonia to the nostrils. But just so far as the ether is absorbed just so for it aids in overcoming the heart.

The only drugs which, in these failing insufficient hearts, I have found to be of value are strychnin, cocain and digitalis. Digitalis should be given hypodermically. More than this: I have found in the lower animals that the lowered pressure under chloroform or ether is brought up wholly by digitalis injected into the veins. More than this; I have found that digitalis given before the anesthetic has a remarkable power in steadying the heart. Whenever you have any reason in any case to especially fear cardiac depression from the use of the anesthetic, precede the anesthetic by your digitalis. And precede it long enough so that the heart shall be under the influence of that digitalis when the anesthetic is given.

And with digitalis always use strychnin in the accidents of anesthesia. It effects the respiratory function probably more than it does the cardiac function, but it certainly has some power in backing up the action of digitalis on the heart.

And then there is another drug which is of equal value with strychnin, and which can be associated with strychnin; and that is cocain. It acts upon the respiration and circulation about as strychnin. In the chloralized dog you can raise the respiration by as large doses of strychnin as can be given without producing convulsion, and then by giving cocain get a further increase of the respiration. You will find in cases of adynamic, advanced pneumonias, where you want to sustain the respiration as well as the circulation, that the combination of strychnin and cocain is of especial value.

EXTIRPATION AND COLOTOMY IN CASES OF CANCER OF THE RECTUM.*

LEWIS H. ADLER JR., M.D.,† PHILADELPHIA, PA.

Colotomy and extirpation are two recognized procedures for the relief of malignant disease of the rectum. Both operations offer to the patient a chance of prolonging life; and, in addition, extirpation holds out the possibility of effecting a radical cure in selected cases.

The choice between these two methods is a question of uncertainty only in a relatively small group of cases, and extirpation is not to be considered in the majority of instances, for the reason that the disease is usually an incurable malady, and by virtue of its concealed position within the rectum its presence is not revealed or even suspected until the growth has existed for some time. Furthermore, is is rare for cancer of the rectum in its incipiency, to manifest itself by any symptom pointing to a lesion within the bowel. This is a familiar observation to all surgeons.

It frequently happens that a patient comes to us complaining of some slight diarrhœa or other mild rectal trouble, and an examination unexpectedly reveals the fact that cancer is present to such an extent that it is obvious the neoplasm has existed for a considerable period. Consequently, its complete removal is often rendered impossible. Again, the patient's vitality is such that so grave an operation and one requiring the length of time for

* Read in the Section on Surgery and Anatomy, American Medical Association, 1895.

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its performance, as an excision, is contra-indicated.

In arguing thus, I would not convey an impression that I am opposed to extirpation for malignant disease of the rectum in suitable cases; on the contrary, I firmly believe it to be a perfectly justifiable operation when the growth is circumscribed and confined to the lower five or six inches of the bowel: provided, however, that the tumor does not involve all the coats of the intestine; that it has not attacked the viscera which are intimately associated with the anterior wall of the rectum; that it has not invaded the pelvic glands, or by metastasis any of the other organs of the body; and finally, that its growth be not rapid nor have a tendency to spread widely. From these considerations, it naturally follows that the number of patients who can be benefited by excision of the disease is comparatively small.

Colotomy, on the other hand, is indicated in a large number of instances where it is quite impracticable to attempt an excision. The advantages of the operation lie partly in the relief it affords to symptoms and partly as a means of retarding the growth of the neoplasm.

To indicate the relief afforded such patients by a colotomy, I can not do better than quote the opinion of Kelsey on this subject as expressed in the fourth edition of his work: "Diseases of the Rectum and Anus." This authority is not only a strong advocate of the operation, but is also in a position to judge of its merits by reason of his large experience. He thus states his views:

"As to the benefits arising from the operation, too much can scarcely be said. That it prolongs life by the relief of pain, the preventing of obstruction, and retarding the growth of cancerous disease is beyond question. That it substitutes in many cases a painless death for one of great agony is indisputable. The idea that it is as well to let a patient die as to subject him to a colotomy has no supporters among surgeons who have had any experience with these cases. Indeed, I think that the practitioner who to-day sat by and allowed a patient to die of obstruction because of any sentiment against this procedure would hardly be held blameless. I can only say that, after trying every other means of treatment and being obliged to admit the fruitlessness of them all, I have come, with most others, to admit the great benefits of colotomy, and *have never performed it in any case in which either the patient or myself has afterward regretted it.*" (Italics mine.)

In another article, Kelsey mentions even more minutely the advantages of this operation, as follows: "Colotomy, especially inguinal colotomy, relieves pain; does away with the constant tenesmus and discharges from the rectum, which by their exhausting effects are the immediate cause of death; delays the development of the disease by preventing the straining and congestion of defecation; prevents absolutely the complication of intestinal obstruction, which is another cause of death; enables the patient to sleep, eat and gain flesh, and often makes him think himself cured in spite of the plainest prognosis to the contrary. Instead of passing his days and nights upon the commode, wearing out his life in the effort to free the bowel from its irritation, he has one or perhaps two solid fecal evacuations from the groin in twenty-four hours.

In conclusion, I would like to allude to one more topic, to-wit: the choice of sites of opening the colon. I mention this subject with the sole purpose of eliciting the present views of the members of this society. My own belief is that the inguinal region is to be preferred in the majority of cases. Its advantages over the lumbar operation are, to my mind:

1. The smaller incision and lesser depth of the wound requisite to reach the colon, and the minimum amount of disturbance of the structures overlying the seat of operation.

2. The greater facility offered for the exploration of the abdomen, when such a procedure is required.

3. The better position for safe anesthesia, during the operation.

4. The comparative ease with which the colon may be identified in this position, and the little difficulty experienced in fixing the bowel to the skin without undue tension on the stitches.

5. The greater readiness with which a good spur may be formed.

6. The convenience to the patient of the site, for purposes of cleanliness and for the adjustment of pads; and

7. The recent statistics seem to indicate that it is the less dangerous operation.

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SATURDAY, AUGUST 17, 1895.

EDITORIAL.

UNDER COVER OF CHARITY.

The Scriptures exhort: "Above all things have fervent charity among yourselves; for charity covereth the multitude of sins."

The fact that sins exist under cover of charity, does not render them any the more venial, nor does it justify continuing their existence. Moreover, the charity specified as among Christian Graces the greatest, is the antinym of the modern philanthrophic disgrace yclept charity. "Charity," as defined in Holy Writ, "suffereth long and is kind, envieth not, vaunteth not itself, is not puffed up, doth not behave itself unseemly, seeketh not her own, is not easily provoked, thinketh no evil, rejoiceth not in iniquity but rejoiceth in the truth, beareth all things, believeth all things, hopeth all things, endureth all things, never faileth." The distinction is obvious without further comment. Now-a-days, the professional philanthropist, too often, is he who, "with one hand puts a penny in the urn of poverty and with the other takes a shilling out."

Had Edmund Burke been speaking of the subject, he need only have substituted the word charity for liberty and he would with equal truth have given the definition: "What is charity without wisdom and without virtue? It is the greatest of all possible evils; for it is folly, vice and madness, without tuition or restraint," and Madam Roland well might have exclaimed: "Oh, Charity! Charity! how many crimes are committed in thy name." The experience of modern organized humanitarian effort would bear out these assertions. For if one lesson has been thoroughly learned it is that open-handed and indiscriminate alms-giving, without any effort at return on the part of the beneficiaries, pauperizes poverty and degrades pauperism.

We are prompted to these remarks by an editorial which recently appeared in the *Times and Register*, under the cap-

tion, "How about the little fishes?" and which appears in another column.

THE REPORTER has frequently and distinctly defined its position in this matter, and has deplored the multiplication of medical-pauper factories. To the uninitiated observer there would be no doubt as to the propriety of the individual dispensing free medicine equally with the wholesale eleemosynary institution—at any rate, no difference from the standpoint of morality. But to those who are skilled in the refinements of codic ethics, the distinction is most definitely drawn, and the individual guilty of the heinous crime of free and indiscriminate dispensing is obviously no fit company for the righteous profession which may fall all over itself in its eager struggles to obtain appointments to large institutions whose practices bear the same relationship to the misdeeds of the individual that making a corner in wheat or other food-stuff bears to the petty larceny of a loaf of bread from the open window of the bake-shop.

No one will deny that the charges brought against the system of free medical dispensaries, as it obtains in the cities of this country, are in the main true, and that the present tendency of hospital and dispensary service is to degrade patients, defraud patrons and demoralize the profession. Although the abuse is occasionally deplored by physicians who do not enjoy the alleged advantages of institutional connection, the matter is slighted off by others who have such appointments and who are well aware that so long as the subject can be continued as everybody's business it will be treated as nobody's business and their opportunities for self-aggrandizement will not be imperilled.

Observe the difference between the free medical dispensary which is condemned as charlatanry and that which bears the stamp of ultra codic grace. It is an illustration of the refinement of differential diagnosis. Both cases mentioned are actual occurrences of recent date and in the same city.

In the first instance a number of qualified physicians, having more profession than practice and more discernment than discretion, conceived a plan which was to benefit the "poor and needy, the sick and suffering, etc., etc.," and at the same time bring to themselves the coveted opportunities for achieving reputation—possibly even professorships—without incurring expense to themselves, and with the remote possibility of increasing their personal income. The scheme, in brief, was to issue commutation tickets, good for stated periods, which for a small consideration would entitle the holder to advice and treatment during that period without further expense; and the commutation tickets were made transferable. The intention was to reach that large class of the population whose income is limited but whose self-respect denies them accepting gratuities. The plan flourished exceedingly until the profession awoke to the fact that it was being defrauded by unholy methods of competition. Then it rose in dignified might and sat upon that scheme. It could not tamely submit to being robbed in such an unethical manner. It was notable that those connected with services where advice and treatment was entirely gratuitous, and where the running expenses were met by the contributions of the benevolent or appropriations from the public treasury, were not lacking in denunciation of this bare-faced robbery. The upshot of the matter was the promulgators must turn from the error of their way or incur the penalty of professional ostracism. Very wisely the provident ones did penance and secured pardon, while "the poor and needy, sick and suffering etc., etc.," were deprived of the opportunity of paying for medical services at excursion rates, and must

accept their healing gratis or patronize unattached physicians.

The motives underlying this attempt to establish a mutually benevolent Siloam—a cure pool—were similar, save that they were better, to those which succeeded in constructing an ethically correct medical-pauper factory—as in the second instance noted. In this latter case the originators likewise were churning butter from the milk of professional philanthropy, but they were much wiser in their generation, and could hunt the trail of policy so sure as old Polonius had used to do. The difference between the methods used was quite as notable as the difference between the results obtained. Success was reached by securing from the lay intimate friends and relatives of the astute philanthropists, a number sufficient to incorporate under law. The charter, which required that those executing the trust should be elected by those contributing the means, was beautifully designed to keep the corporation close. A distinction was drawn among contributors, and the power to vote depended entirely upon an election by the trustees to a voting contributorship. The membership of this latter body was not extended beyond the board of trustees. *Verbum sapienti sat.* A solicitor of contributions was liberally commissioned to work upon the sympathies of the "charitably inclined," and to initate them into the blessedness of giving and thus lightening the burdens of the philanthropic trustees. Finally, the state was seduced into diverting public moneys for its support. Within a few months, the chief executive of the commonwealth has authorized the expenditure, during the two years forthcoming, of many thousands of dollars for the operations of an institution essentially personal. It dispenses free medical treatment to a class of patients amply provided for in other institutions which are legitimately entitled to public support. The manipulators of this institution have secured all the objects the promoters of the first scheme planned for and failed to obtain. Whatever the difference between them in righteousness codified ethics may ordain, from the standpoint of morality the distinction seems about the same as the fundamental difference between larceny and embezzlement.

The subject is too extensive to be dealt with off-hand, nor does the REPORTER profess the ability to solve the problem. It would be folly to condemn benevolent institutions simply because evils are liable to develop in the management. But to sit supine and allow flagrant and vicious abuses to go unrectified, would be an exhibition of cowardice unworthy of the profession which justly claims itself unconquerable. We do not know what may be the situation in Great Britian which the Executive Council of the British Medical Association confesses itself impotent to deal with, but we would not for one moment admit that in this country an united profession with opinion crystalized, could not so greatly mitigate the dispensary abuse as practically to eliminate it.

The difficulties to be overcome are real and often puzzling. The abuses so thoroughly permeate the entire hospital system, that to extirpate the malignant growth might require the sacrifice of some sound tissue. Furthermore, from the outset, vehement and persistent opposition will be met with in the profession itself, for those who profit by the existing system could scarcely be expected to aid in its abolition.

A plan which would seem to promise efficiency, is suggested by the recent action of the New York County Medical Association in appointing a committee to investigate the abuses complained of in that city, and to devise methods to remedy them. Make the plan here adopted of general application by county societies, then by the state societies, and, finally, by

the national associations, and the professional sentiment thus crystalized would become an influence of such magnitude and power as to make or to break medical benevolent institutions. Consider the effect upon the legislature of any state, of a forcible and public protest, authorized by the body representing the organized profession, against the misappropriation of public moneys to medical charities demonstrated unworthy after impartial investigation. Legislatures, perchance, would find the necessity of explaining to the satisfaction of their constituents the wherefores of these little interchanges of courtesies, sufficient reason to give themselves pause. There is little doubt that if public support were entirely withdrawn from all medical charities not under the direct supervision of the state itself, while some hardship might be wrought, a gigantic stride would be taken towards the abolition of the much contemned abuses. Then again a similarly authorized expose of those institutions, whose continued existence depends upon success in striking water when boring in the fields of private benevolence, would soon shut off the sources of supply and the thirsty corporations would die out of inanition.

ABSTRACTS.

HOW ABOUT THE LITTLE FISHES?

The late exchanges from across the water inform us that in England the whole profession is in a red-hot ferment on the hospital and dispensary question. The latest echo from our transatlantic cousins comes to us in the form of a protest, presented by London practitioners against opening pay wards in the Great Northern Hospital. Practitioners in that hospital district, learning of the new scheme about to go into effect, called an indignation meeting and sent a protest to the Board of Managers against admitting to the wards of a public charity those who were able to pay for nursing and attendance, as it was in direct contravention of the spirit and purpose of such institutions, which are intended only for the poor and destitute. But as we might expect, the managers contemptuously ignored the respectful appeal of the general practitioners, and, in defiance of it, invited all to enter who had the sovereign to pay.

In the meantime, the resources of St. Thomas' Hospital have become reduced in spite of the prostitution of the endowments of that institution to support pay wards, and, notwithstanding the piteous appeal of the Duke of Connaught for contributions, money has not been forthcoming.

In America those collossal infirmaries and smaller fry which appeal to the public for support are working incalculable harm to legitimate practice. The wail of the colleges that clinical material must be had is a deception. As a matter of fact there is an excess of material for teaching among the destitute poor and needy.

Some of our leading medical journals have been finally moved to open sieges on the medical colleges and hospitals. The "Medical News" attacks hospital managers and college faculties in a merciless manner, and the "Journal of the American Medical Association" falls into line, laying the lash on unsparingly, particularly, and unjustly we think, in the case of post-gradute schools.

In New York city, at the last meeting of the County Medical Association, the management of the principal public, college and private hospitals and dispensaries was fiercely denounced. They were charged with deceiving a public, abusing a trust, demoralizing and pauperizing the medical profession; and a committee was organized, with Dr. Douglas H. Stewart as chairman, to immediately institute a searching investigation into the whole subject, and if ground for action was later found necessary, to rally the whole force

of general practitioners to meet and crush the evil which threatens their near extinction, or will make it impossible for one to maintain a respectable existence in his profession. We understand that the committee will force this matter on the notice of the city government, and in the winter seek legislation at the capitol.

In all our larger cities, and indeed in many of our smaller villages, sanitariums, women's hospitals and various special hospitals, with free dispensaries without number, are cropping up. The methods of some of these unquestionably are to say the least, rather "shady." In one's morning newspaper, folded up, is a circular notice of the "best free treatment by eminent physician;" handbills are scattered through the tenements, and frequent newspaper notices of them appear. Now, the serious question arises, What can the profession do, if anything, to remedy the present hospital and dispensary evil? For it would seem that unless some drastic and far-reaching remedy is applied, in spite of our vaunted State laws and examinations, in the very near futnre we will witness in this country a State charlatanry and quackery contrasted with which the worst ever witnessed would be but a mere shadow.

The council of the British Medical Association has recently declared itself quite impotent to deal with the evil. Anyone, it seems, is free to give his time for nothing if he pleases. Ambition to be a consultant or a "professor" it seems is no crime, and of this latter commodity there is no special dearth, for we hear of one of our medical colleges with a staff of fourteen professors, with great pomp and gusto, out of a large class of seven students graduated two.

It had been lately suggested that a way to meet the free dispensary competition would be to have all large cities districted and provided for means of attending all needy applicants. This, it was thought, would cut off some of the supplies of the larger concerns and provide something for practitioners to do, to utilize their excessive leisure.

However, much as we may dislike to admit it, the fact and the truth are that if the principle of free and indiscriminate treatment is right for mammoth institutions, with a large number of physicians attached to them, who are there for what their labors will bring them, it equally applies to the single practitioner as to a few to indulge the luxury and pose as philanthropists.

SOME COSTLY PHILANTHROPHY.

The Governor of Pennsylvania has signed the following appropriation bills for Philadelphia institutions, passed by the Legislature during the session just closed: University of Penn., $200,000, and the Hospital department of the same, $55,000: Jefferson Medical College Hospital, $112,000; Medico-Chirurgical Hospital, $150,000; Kensington Hospital for Women, $5,000 Maternity Hospital, $5,000: Memorial Hospital, Roxborough, $7,000; Philadelphia Orthopedic Hospital, $5,000; Philadelphia Lying-in Charity, $6,000; Gynecian Hospital, $25,000; St. Christopher's Hospital for Children, $4,000; Woman's Hospital, $8,000; Rush Hospital for Consumptives, $10,000; German Hospital, $20,000; Philadelphia Home for Infants, $5,000; also Homeopathic Medical and Surgical Hospital and Dispensary, $50,000; Children's Homeopathic Hospital, $8,000; Hahnemann Medical College Hospital, $57,000. Outside of Philadelphia the following appropriations were also made: Columbia Hospital $3,000; Scranton West Side Hospital, $4.000; Reading Hospital, $15,800; Reading Homeopathic Hospital, $10,000; South Bethlehem, St. Luke's Hospital, $20,000, Easton Hospital, $15,000; Conemaugh Valley Memorial Hospital, $10,00; Chester Hospital, $10,000; Scranton Lackawanna Hospital, $25,000; Lebanon, Good Samaritan Hospital, $6,000; Pittston Hospital Association, $14,000; Carbondale Hospital Association, $12,000: Pottstown Hospital, $14,000; Pottsville Hospital, $10,000; Charity Hospital, Montgomery County, $9,500; Lancaster General Hospital, $4,000; Chester County Hospital, $6,500; Jefferson County, Adrian Hospital Association, $10,000; Altoona Hospital, $12,000; Westmoreland Hospital at Greensburg, $6,000; Wilkesbarre City Hospital, $25,000; Williamsport Hospital, $12,000; Pennsylvania State College, $212,000; Western University, $50,000.

SYNOPSIS OF CASES OF APPENDICITIS TREATED DURING THE YEAR IN THE PENNSYLVANIA HOSPITAL.

I. R. C. Admitted fifth month, 16th, 1894. Male, white, Italian, laborer, aged 15 years. No history of a previous attack. Sick for nine days prior to admission. Cœliotomy was performed a few hours after admission, and an abscess was found in the region of the appendix, entirely shut off from the general abdominal cavity by dense adhesions. In the abscess there was found a round worm twelve inches long. The appendix was not found. Recovery.

II. D. L. Admitted sixth month, 14th, 1894. Male, white, Italian, age 7 years. Died a few hours after admission. Autopsy showed a large diffused abscess in right iliac region. Appendix could not be found.

III. D. L. Admitted sixth month, 21st, 1894. Male, white, Russian, age 43 years. Had a distinct history of a previous attack some years before. No operation allowed. Treatment, calomel in fractional doses, with the application of belladonna and mercury ointment under a flaxseed poultice to the region of the right iliac fossa. Recovery.

IV. I. S. Admitted sixth month, 23d, 1894. Male, white, Russian, aged 57 years. Had been sick about one year before his present illness, a bowel trouble, the nature of which could not be determined. He had been sick for a week when admitted to hospital. Declined operation. Treatment, fractional doses of calomel, belladonna and mercury ointment underneath a flaxseed poultice to right side of abdomen. Insisted on going home five days after coming to hospital. He was slightly improved when discharged.

V. J. B. Admitted sixth month, 29th, 1894. Male, white, American, age 10 years. No history of previous attack. Had been sick about one week with vomiting and purging. Was in very poor condition on admission. Cœliotomy was performed the day after admission. An abscess cavity was found in the right iliac fossa. The pus had a distinctly fæcal odor. At the bottom of the abscess the appendix was found. It was gangrenous, and there was a perforation in it. The boy never reacted from the operation and died several hours after it.

VI. M. C. Admitted seventh month, 3d, 1894. Female, white, American, aged 11 years. Eight days previous to admission this little girl received a blow on the abdomen in falling from a swing. Had had intense pain in the right iliac fossa, and her bowels had not moved since the accident. Cœliotomy was performed immediately after admission. Incision made in right iliac fossa. On opening the peritoneum a large gush of pus occurred. The appendix was not found. A fæcal fistula formed in the site of the wound but closed completely before she was discharged from hospital.

VII. J. H. P. Admitted seventh month, 7th, 1894. Male, white American, aged 28 years, shoemaker. No history of a previous attack. Six days previous to admission he was kicked in the right side of the abdomen. Since then had been constipated and had much pain in the region where he was kicked. Cœliotomy was performed immediately after admission. Incision made in right iliac fossa. As soon as the peritoneum was open there was a rush of very foul smelling pus. The appendix was found at the bottom of the abscess cavity. It was gangrenous, contained an enterolith, and was perforated in two places. The appendix was four and one-half inches long. Recovery.

VIII. C. J. C. Admitted seventh month, 17th, 1894. Male, white, American, age 39 years; foreman. No history of a previous attack. Ten days previous to admission he had eaten a large quantity of chestnuts. Since then had suffered from intense pain in right side of abdomen. Cœliotomy was performed immediately after admission. Incision made in right iliac fossa. On opening the peritoneum a large quantity of foul pus welled up. Appendix was found in the abscess. It was gangrenous, but there was no perforation. Died nine days after operation from exhaustion.

IX. W. L. Admitted ninth month, 9th, 1894. Male, white, Irish, age 34 years. Three years ago had an attack of appendicitis. For three weeks prior to coming to hospital he had suffered from

diarrhœa, with pain in right iliac region. No discoverable cause for his illness. A distinct mass could be felt in the region of the appendix. Treatment, calomel, in fractional doses, with the application of belladonna and mercury ointment under flaxseed poultices to right iliac region. Recovery.

X. C. S. Admitted twelfth month, 12th, 1894. Male, white, American, age 22 years, lineman. No history of a previous attack, although for two years he had suffered from vague attacks of pain in the right iliac region. Present illness began four days before admission, when he had an attack of vomiting just after a heavy meal. Cœliotomy was performed the day after admission. Incision made in right iliac fossa. A large abscess filled with very foul pus was found. The appendix was gangrenous and contained five perforations. It was removed. Recovery.

XI. I. Z. Admitted twelfth month, 15th, 1894. Female, white, Russian, aged 21 years. No history of a previous attack. Had been sick one week before coming to hospital. Cœliotomy was performed the day after admission. Incision made in right iliac fossa. An abscess cavity full of very foul pus was opened, and in it was found the appendix which was much inflamed and had one perforation. Recovery.

XII. J. C. Admitted twelfth month 30th, 1894. Male, white, English, aged 32 years; cook. No history of a previous attack. Had been constipated for one week prior to admission, and, during this period, had taken much purgative medicine. Had persistent vomiting and hiccough for two days previous to admission. Cœliotomy was performed a few hours after admission. Incision made in right iliac region. When the abdominal cavity was opened there was a gush of foul pus. There was a large abscess to outer side and behind the ascending colon, extending nearly up to the liver, and containing in its centre the appendix, which had sloughed at its extremity so as to have a free opening. There was another abscess cavity filled with excessively foul pus just below the cæcum, and extending down into the pelvis. The appendix was removed. Patient died the following day from exhaustion.

XIII. P. T. Admitted first month, 9th, 1895. Male, white, Irish, age 41 years. During the last three years has suffered every few months from attacks similar to the present. There was a distinct mass in the region of the appendix. Declined operation and insisted on leaving hospital. Unimproved.

XIV. M. M. Admitted second month, 21st, 1895. Female, white, American, age 24 years; domestic. No history of previous attack. Present illness began one week before admission. Cœliotomy was performed one week after admission. Incision made in right iliac region. The appendix was found in the centre of a large abscess. It was gangrenous, and was removed. The right Fallopian tube contained pus and was also removed. Recovery.

XV. A. R. L. Admitted second month, 26th, 1895. Male, white, American, age 38 years; laborer. Has had two attacks of appendicitis before. Illness began the day of admission with severe abdominal cramps. Cœliotomy was performed the day after admission. An abscess cavity filled with very foul pus was found in the region of the appendix, but the appendix itself could not be found. Died three days after operation from exhaustion.

XVI. O. L. Admitted third month, 15th, 1895. Male, white, American, age 26 years. Has had a number of attacks of appendicitis. Came to hospital while in good health. Cœliotomy performed the day following admission. Appendix was found somewhat thickened and indurated. No scars and no enteroliths were found in it. Recovery.

XVII. D. S. Admitted third month, 26th, 1895. Male, white, Russian, age 46 years. Has had several attacks of appendicitis before. He had been sick four days before coming to hospital with constipation, pain in abdomen, and vomiting. Cœliotomy was performed a few hours after admission. Incision made in right iliac region. All the tissues about the appendix were bound down tightly by old adhesions. There was a large amount of reddish serous fluid in the abdominal cavity in the immediate neighborhood of the appendix, and also much inflammatory lymph. The appendix was two and one-half inches in length, twisted, walls much thickened and covered with inflammatory lymph. It was closely adherent to

the tissues surrounding it, very red, and appeared to have been the seat of much previous inflammation. The appendix was removed. Died fourteen days after operation from exhaustion.—*Annual Report, Pennsylvania Hospital, 1895.*

SOCIETY REPORTS.

OBSTETRICAL SOCIETY OF CINCINNATI.

Dr. S. C. Ayres read a paper on

THE RELATION OF UTERINE DISEASES TO FUNCTIONAL AND ORGANIC OCULAR DISEASES.

(See page 170.)

DISCUSSION.

Dr. A. W. Johnstone: First and foremost I owe a pardon to the guests for not being here to hear these papers. But I cannot let this beautiful paper of Dr. Ayres pass without discussing it, because it is in the field of my first love. I was an occulist, as you know, for ten years.

This is really a beautiful paper, and, if some one will not ring the chestnut bell on me, I think the cases he has mentioned illustrate, even better than my own, the Stevenson wave. The epistaxis, the hemorrhages into the retina, nerve, chorid, and all are part and parcel of the same which occur in other forms of vicarious menstruation. I believe this may be produced in the same way. The other class of choroidal and retinal inflammation I think very largely due to what he says. I saw two or three of these cases years and years ago. I remember one poor woman especially, before I had anything to do with gynecology, that came to me with a decided choroido-retinitis. I would see her at intervals of about eighteen months. She would come and get some iodide of potassium and then disappear. At each interval she would have a baby, and each time was freshly attacked. At length there was complete blindness. I think that was due to nothing but a Bright's retinitis, which became better during the intervals between the pregnancies. I suppose the connection between Bright's retinitis and the kidney is largely due to the to the developement of the mesoblast. They are formed from the same structures, and anything likely to affect one is likely to affect the other. Histologically and biologically, the retina and choroid are very close in the beginning, and anything that will affect one will likely affect the other. I saw one other case, in which there was limitation of vision to a very small area in both eyes, undoubtedly hysterical, and a very slight lesion was found in the eye to account for it. After curetting, curing up an old chronic endometritis, the eyes seemed to improve, but finally the ovaries had to be removed. I have not seen her for about six months, but she says the eyes are better. The artificial menopause is now about complete, having been forced upon her at about forty-two or forty-three years of age.

Now, as to that class the doctor referred to, in which errors of refraction give so much trouble to young menstruating girls and in which the eyes tire the whole body, the general practitioners and those of us in the other specialties do not recognize the amount of work done by the ciliary muscle. It is doing a hundred times the work of any other muscle in the body. When the whole muscle system is run down in a patient that is neurasthenic, is it any wonder that she cannot use this muscle? And is it any wonder she has a little error of refraction? When one part of the globe is curved more than the other, and with a little exertion she can overcome it, is it any wonder it shows when she becomes run down? That seems to me to be the explanation of these cases in many instances. That is the reason why these errors of refraction give them so much trouble. I think the caution the essayist gave, not to let the patients read

too soon during the lying-in or puerperal stage, is a splendid one. I never, after a surgical operation of any sort, allow them to read for two weeks. It takes about ten days for the wound to heal and for the little disturbances of digestion, etc., to disappear, and then it takes two or three days for the system to regain its tone. It has been with me almost a routine plan, and now I understand why it is best to do so.

I can only close discussing the doctor's paper by thanking him for, I think, one of the best and most interesting papers we have had here for a long time. It is, I suppose, most interesting and entertaining to me because it embraces the two subjects I have paid the most attention to.

I wanted to hear Dr. Eichberg's paper very much, because it encroaches so closely upon neurasthenia, and it comes very closely into one of our essential methods of practice in treatment. I wanted very much to hear what he had to say about it. I believe the "rest cure" is the grandest humbug which has been practiced. The very reason I have been away so much this evening is due to one of those cases, which has been placed through the "rest cure" four times. She has a cervix about as big as the tip of my finger; she has a uterus which I am sure does not measure over two inches. She did not begin menstruating until she was sixteen years of age. In other words, it is the most perfect typical case of infantile uterus I have ever seen. She has now a pair of diseased ovaries, and here the men have been putting her through the "rest cure." That has been my experience all the way through. Whenever I make a diagnosis of neurasthenia I am inclined to think it is a mistake, and I had better go over it again, except where there is some great mental strain. Even before this mental strain comes, I grant you it may be a case, but no amount of "rest" treatment will do the patient any good. But get a massage nurse and send the patient to California, Japan, China or somewhere where she will have a change of life and it will do her good. This thing of putting the patient to bed may do our pocket-books good, but I have given it up because it does the patient no practical good. I have never yet made a diagnosis of one of these neurasthenics, who has dragged along for years with nothing to account for it, in which I have gone back and hunted carefully and not found a pathological lesion which has been overlooked. The Weir-Mitchell theory is beautiful on paper, but in practice it does not exist, except in the way I have told you. Every time there is a leak there is some pathological lesion through which it occurs, and you will never cure it until the pathological condition is corrected. After this is done, all these patients need is a bright, happy life, and they become well.

Dr. Palmer: Pardon me for speaking again, but this is another very instructive and interesting paper. Unquestionably, to my mind, there is an association between these two organs, the eye and the uterus or ovaries. Ocular diseases produce uterine disorders, and *vice versa.* Eye-strain is a very common cause of headache, as everybody knows, and it does more than induce or produce headache; it causes other nervous symptoms and neuralgia, it induces palpitation of the heart, insomnia and stomach disorders, and I do not see why it could not also induce certain pelvic disorders. It seems to me that we see, as it were, a direct association between the eye and the uterus, and we must recognize that certain ocular symptoms come from disease of the uterus and ovaries, and *vice versa.* We must not be misled by the fact that a good many of these diseases are associated by a general disorder of the blood and nervous system. And may not both diseases be the result of the general disorder? I believe many of these diseases are coincident, and both dependent upon the general condition.

Reference has been made to the form of eye disturbance which comes from albuminuria. Dr. Ayres referred to the importance of examining the urine of pregnant women before labor. I think no intelligent practitioner now neglects this. I always do it, and it is done in our hospital daily for weeks before parturition. We look for all changes in quality and quantity. We determine whether to allow pregnancy to go to term, or bring on premature delivery by the condition of the urine and the resulting symptoms. The eye symptoms during lactation, it seems to me only illustrate that they, too, are the result of the general condition. Lactation changes the quantity of the blood, alters its quality, and this general disturbance resulting brings about the eye disorder.

Dr. Louis Stricker: As I look at it this evening, I am rather skeptical about uterine reflexes of the eye. It seems that they might be divided into those which come on during the menstrual period and those which the doctor has classified as as coming along with metritis, endometritis, and ulceration of the cervix and things of that kind, and finally the classification of cases which come on as the result of Bright's disease. Of the first class it seems rather far-fetched to connect the two together, unless there is a vasomotor disturbance, and this in years worked a change in the choroid and finally one of the vessels would give. Now, I have seen one case of that kind, a young lady who had her menstruation suppressed suddenly while at the fair in Chicago, and the next day she had a hemorrhage. She was perfectly healthy otherwise, and it is impossible for me to declare why the hemorrhage occurred, unless there is some connection that way. I agree with Dr. Palmer, that the diseases are usually associated more than anything else. The constitutionality of the blood is changed and the eye is affected that way, especially the asthenopic symptoms are produced. The ciliary muscle is affected, and is no longer able to do the work it has to do. Especially is this the truth when the patient becomes older and they are not able to accommodate so well. When it comes to the cases which follow Bright's disease, it hardly seems to me proper to class those with the uterine diseases at all, for this is a disease of the kidney; although it may be induced by pregnancy, it remains, nevertheless, a disease of the kidney, which I do not think ought to be classed with the uterine diseases. Then the large class of hemorrhages, it seems to me, have nothing to to do with the eye, but simply to anemia of the brain. The same thing follows in hemorrhages after operation and where hemorrhage follows an ulcer in the stomach. I saw cases in the hospitals of Europe where blindness followed ulcer of the stomach.

Copper Arsenite in Therapy.

A number of cases are described by Dr. A. Hedlicka in which he employed copper arsenite locally, with almost universal success in the various acute and sub-acute inflammations of the mucous membranes, attended with pain, suffusion and more or less watery discharge. He found it most efficient in solutions of 1:50,000—100,000. These solutions are easily made by dissolving a $\frac{1}{100}$ grain pellet in $1\frac{1}{2}$ ounces of water; they are applied at intervals rarely longer than an hour (bladder, uretha and nose), and frequently not longer than from ten to fifteen minutes.

The remedy is rather indifferent in cases where the discharge is thick or persistent unless the affected surface be previously thoroughly cleansed.

The duration of the treatment ranged from a few hours to two or three days in mild cases, from several days to three months in severe cases. The author pretends to have never failed; relief being always instantaneous, no other nearly remedies were needed.—*N. Y. Med. Jour.*

The Treatment of Hemorrhoids.

Dr. Claude A. Dundore has an interesting article on the treatment of hemorrhoids in *Mathew's Quarterly* in which he presents the following conclusions, based upon a large correspondence with American surgeons:

1. The legature is the safest method, as there is less likelihood of its use being followed by hemorrhage, strictures, or ulcers.

2. The clamp and cautery causes less pain and a shorter convalescence, but hemorrhage and stricture of the rectum may very often follow its improper application.

3. Whitehead's method should be limited to those cases in which the entire circumference of the anus is involved. In ordinary cases of one or more hemorrhoids it should never be used.

4. Simple dilatation of the sphincter, injection of carbolic acid and Manley's method are merely palliatives.

Ipecac not an Oxytocic.

Dr. A. Keilmann (*Petersburger Medicinische Wochenschrift*, No. 24, 1894) has tried the tincture of ipecac as an oxytocic in weak uterine contractions as recently recommended by Drapes and Utt of St. Petersburgh and denies that it has any such powers. He would rather advise pushing the head from above down into the pelvis, but under anesthesia.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE

Ichthyol in Miscellaneous Cases.

P. Schmitz, (*Amer. M. & S. Bul.*) Ichthyol appears on the market in a number of salts of sulphoichthyolic acid, known, according to their respective basei, as Ichthyol-Ammonia, Ichehyol-Zinc, Ichthyol-Sodium, etc. The form principally employed is the Ammonium Sulpho-Ichthoolate or Ichthyol-Ammonium.

In eczema. urticaria, psoriasis, seborrhea, intertrigo, and pruritus the writer found ichthyol to be a very efficient remedy. For these cases he uses it in different combinations and proportions, tncorporated with salicylic acid, zinc oxide, powdered starch, and vaseline, or with the zinc-oxide ointment. The following combination is a favorite:

Ichythol	½—1 dr.
Acid Salicylic	20 grn.
Zinc Gxide	2 dr.
Powd. Starch	4 dr.
Vaselin	1 oz.

Apply twice daily.

In chronic eczema, where the affected surface was quite large, with severe itching and hyperemia, the following combination,

Ichthyol	2 dr.
Distilled Water	4 dr.
Lavoline	To make 4 dr.

Apply two or three times daily,

relieved the itching almost immediately, and the hpyeremia subsided in a short time.

In skin diseases of children, add only from 20 min. to ½ dram of ichthyol to the ounce of ointment. In contusions and small wounds apply it either in full strength, or mixed in equal parts with glycerin. He has never observed any untoward effects.

In pruritus ani 1 dram of ichthyol to the ounce of vaselin gives quick relief.

He found the drug to be a good analgesic, anodyne, antirheumatic, antiseptic, and wound granulator, appetizer, and gastric tonic.

The first case was that of a woman during lactation, with inflammation of the left breast. She was suffering excruciating pains in the mamma and head for three to four days, and the gland was swollen and very red. He prescribed a mixture of equal parts of ichthyol and water, and ordered this to be gently rubbed in two or three times daily; the breast then to be covered with cotton and flannel. This constituted the whole treatment. The patient suffered very little after the applications, and in two days the breast opened, discharging considerable pus. The applications were continued, and in a short time she recovered perfectly.

In another case of mastitis, where inflammation had begun two days previous to his being called, he pursued a similar treatment. The inflammation terminated in resolution, and in three days the patient was well.

He tried it in one case to check the secretion of milk, and with good results, after applications of belladonna and camphorated oil had failed. This was a case of still-birth at full term.

In a case of severe lumbago, he ordered an inunction with ichthyol, dram 1½, ether and alcohol, equal parts, to one ounce. This to be rubbed in well, three or four times daily, and the parts covered with cotton. The patient had used only half of the liniment, when the backache left him.

He treated many similar cases this way without a single failure. In pleurodynia, intercostal neuralgia, and sciatica, he uses the same liniment, and gives internally two to three pills, two to three times daily, with good results.

In rusty-nail wounds he makes an application of pure carbolic acid, after which the following ointment is applied twice daily:

Ichthyol	½ dr
Iodoform	15 grn.
Vaselin	To ½ oz.

In fresh wounds apply pure ichthyol, which relieves the pain quickly; after that the above ointment is used. In abscesses, after lancing, the same ointment is applied, until healing is completed. In contusions and sprains, use either the liniment (ichthyol in alcohol and ether) or equal parts of ichthyol and glycerin. It relieves pain and reduces the swelling quickly.

On Nov. 19, 1892, was called to Mrs. E., about 53 years of age, having a large, bad-looking ulcer at the junction of lower and middle third of the right leg, extending from the front to outer side. The ulcer measured two inches and a half in diameter, was fully one-quarter inch in depth, and had a somewhat grayish look. The leg, nearly up to the knee, was very red; there was considerable swelling of leg and foot, with pain. She had injured her leg by a fall, about a year previous, and had tried to heal it with household—and patent—remedies. He made a thorough application of ichthyol over the ulcer and swelling, covered ulcer with gauze. wrapped the leg and foot in a thin layer of cotton, and applied a bandage. The same application and dressing were repeated once a day until Nov. 25. The redness had disappeared by the 22d, the ulcer looked clean and was covered with healthy granulations. On the 23d, swelling entirely gone, no pain, and wound was doing as well as possible. After the 25th the wound was dressed every second day with iodoform gauze, cotton, and bandage until December 5; then every third day until Dec. 20. and again on the 26th. By Dec. 31 the ulcer was perfectly healed. During all this time the woman did not rest a single

day, but kept on her feet, doing all her housework.

The following is a case of varicose ulcer: Mrs. T., age 28 years, pregnant four months and a half, had a very large varicose ulcer on lower third of right leg, causing her much pain and itching. She had the same trouble during two previous pregnancies, but could not get the ulcer healed until after confinement. Ichthyol, 1 dram; iodoform, 20 grn., and vaselin to ½ oz., applied morning and evening, did fairly well. Iodoform alone caused her considerable pain. Ichthyol, 45 min.; salicylic acid, 10 grn.; belladonna ointment, 1 dr.; and vaselin, 1 oz., was applied once daily, covering with gauze, cotton, and bandage. In five weeks from the beginning of the treatment the leg was well, without having the patient confined to bed. Subsequently she wore a rubber bandage, and up to this time there has been no return of the trouble.

In a severe case of acute articular rheumatism of the lower extremities he was successful with ichthyol. There was considerable swelling of the feet, about the ankles and knees, severe pain and inability to move the joints; temperature 102, pulse 94. Patient had severe headache and appetite was poor. Calomel and sod. bicarbonate, 2 grn. of each, moved the bowels. After that one ichthyol pill, four times daily, and 5 grn. acetanilid every three to four hours, to relieve the headache and keep down the temperature. Alcohol-ether and ichthyol liniment (2 dr. to 1 oz). was rubbed in twice daily, and parts covered with cotton. After three days the temperature was about normal, swelling was gone, pain and headache had subsided, and appetite fairly returned; patient could move the affected joints again without the least pain. He then put him on salol, 15 grn., four times daily. The next day temperature and pulse normal, and the patient was feeling quite comfortable. Then he reduced the salol to 10 grn., three to four times daily, for about three days. Two days afterward, i.e., six days after the beginning of the attack, patient was outdoors, and after a few days he went to work and discontinued taking medicine.

Ichthyol is a very valuable medicine in a wide range of morbid conditions, if fairly tried. From his own experience, ichthyol seems to prove efficacious in all diseases dependent upon hypermia and capillary dilatation. It has been tried unsuccessfully here and there in certain affections dependent upon atrophic conditions.

SURGERY.

Castration for Enlarged Prostate.

Haulds, (*Brit. Med. Jour.*) reports seven cases in which this operation was performed. In the first hemiplegia occurred, with death, four weeks after the operation. The second developed signs of acute mania six days after the operation, and died ten days after. The third, also developed mania, and died on the twelfth day. The fourth exhibited the same symptoms, with the same result—death. The fifth had no appreciable mitigation of the urinary trouble thirty days later. The sixth was one of single orchectomy, but the patient died in a few days in a state of mental abberation. The seventh, also a single orchectomy, developed distinct mental weakness, and death followed.

The Results of Double-Castration in Hypertrophy of the Prostate.

J. Wm. White, (*Ann. of Surg.*) reviews the theoretical, clinical, and experimental work on this subject up to the present time. His conclusions are as follows:

1. The function of the testis, like that of the ovary, is twofold: reproduction of species, and preservation of the secondary sexual characteristics of the individual. The need for the exercise of the latter function ceases when full adult life is reached, but it is possible that the activity of the testis and ovary in this respect does not disappear coincidentally, and that hypertrophies with closely allied organs, like the prostate and uterus, are the result of this misapplied energy. This hypothesis would increase the analogy between the fibre-myomata of the uterus and the adeno-fibromata of the prostate, which, from a clinical standpoint, is already very striking, and is further strengthened by the almost identical results of castration in the two conditions.

2. The theoretical objections against the operation of double castration have been thoroughly negatived by clinical experience, which shows that in a very large proportion of cases (that is, very approximately, 87.2 per cent.) atrophy of the prostatic enlargement followed the operation; and that there is disappearance by great lessening in degree of long standing cystitis (52 per cent.); more or less return of vesical contractibility (66 per cent.); amelioration of the most troublesome symptoms (83 per cent.); and a return to local conditions not very far removed from normal (46.4 per cent.), may be expected in a considerable number of cases.

3. The deaths have been 20 in 111 cases, a percentage of 18, but of these there seem to be 13 that may fairly be excluded in an attempt to ascertain the legitimate mortality. In patients operated upon under surgically favorable conditions; i. e., before the actual onset of uremia, or before the kidneys have become disorganized by the two factors rarely absent in advanced cases, backward pressure and infection. This would leave a mortality of 7.1 per cent., which will probably be decreased as advanced knowledge permits of a better selection of cases. It is important to note that even in the desperate cases which make up this series of deaths, fifteen (75 per cent.) showed improvement of symptoms by shrinkage of the prostate before they died.

4. Comparison with other operative proprocedures seems to justify the statement that, apart from the sentimental objections of aged persons on the one hand, and the entirely natural and very strong repugnance to the operation felt by younger persons, cas-

tration offers a better prospect of permanent return to nearly normal conditions, than does any other method of treatment. The relatively greater degree of improvement in successful cases should be considered as well as the mortalityin comparing the operation with the various forms of prostatotomy and prostatectomy. So, too. should the absence of any risk of permanent fistulae, peritoneal or suprapubic, the ease and quickness with which the operation can be performed, and the possibility of avoiding altogether the use of anesthetics, which in these cases are of themselves dangerous.

5. The evidence as to unilateral castration is at present contradictory, but there can be no doubt that in some cases it is followed by unilateral atrophy of the prostate, and in two cases at least it has resulted in very marked improvement of symptoms. It is worthy of furtherinvestigation.

6. From experiments on dogs it has been shown in nearly every case in which the vas deferens was tied or divided on both sides, that without much change in the testicles there were beginning atrophy, and considerable loss of weight of the prostate. Those experiments need repetition and confirmation, as the absence of corresponding testicular change seems to make the results somewhat anomalous. It is possible that the inclusion or severance of small, but important, nerves may account for the effect on the prostate.

7. Alteration of the vascular constituents of the cord, or of the whole cord, produces atrophy of the prostate, but, in his own experiments, only after first causing disorganization of the testis.—*Am. M. S. Bul.*

The Treatment of Fractures.

Dr. Beddoe (*Lancet*), after a careful consideration of twenty-nine cases of Pott's fracture and fracture of the shaft of the femur, concludes that the object to strive for in the treatment of fractures is to replace and fix the bone in its original position. This cannot always be done by means of splints. To go on treating fractures by such means in the face of the results of the cases tabulated can be justified only if there was no other method of treatment at our disposal. There is one other method which offers a prospect of perfect cure, and that is to cut down upon the seat of fracture and unite the fragments by screw or wire in the exact relation that they occupied previously. The only possible objection to this will be raised by those who are doubtful of the success of their aseptic precautions. As a result of comparison of the two methods of treatment, the operative method is infinitely superior to the mechanical.

The Treatment of Elbow-Joint Fractures in the Position of Acute Flexion Without Splints.

Smith (*Boston Med. and Surg. Jour.*) from the evidence of experimental fractures, and the results of clinical experience, arrives at the following conclusions in regard to fractures in this situation:

1. All fractures of the lower end of the humerus, once in position, are held in place if the forearm is kept acutely flexed.

2. Such flexiou can be used without danger to the limb or undue distress to the patient.

3. The only force required being one of flexion, no rigid apparatus is needed, it being sufficient to strap the forearm to the arm. One of the strong points of this treatment, therefore, is its perfect simplicity.

4. The points to emphasize are: Be sure to replace fragments as flexion is made, taking great care that the internal condyle is as low as possible and the joint not widened by effusion between fragments. If the condyle is kept down no gun-stock deformity can occur.

5. In the cases thus far treated the amount of motion gained has been slightly greater than after ordinary methods. The amount of deformity has been very much less.

Fractures in or Near Joints.

Park Atlantic Med. Weekly says that within the first few days following a fracture into the joint the following conditions may be present:

(1). Too wide separation of the fragments by hemorrhage or effusion, this occuring at the joint end as it would at no other point, and being obviated only by the aspirator, or possibly by aseptic incision.

(2). Complete or partial rotary displacement in some other direction, by which bone surfaces are no longer opposed.

(3). Interposition of fibers, or of soft tissues, between bone surfaces, by which bony union is prevented.

(4). The absolute intra-articular character of certain fractures, where fragments are broken off which have little or no blood supply remaining, and which must remain inert foreign bodies, or possibly as irritants, and do much harm.

(5). Exuberance of callus.

(6). Absence of callus, which often does not appear when bone ends are saturated in joint fluid.

Some of the more remote consequences are:

(1). Exuberant callus forming later as the result of too early attempts to move the parts, as a consequence of delayed callus formation, or from other causes.

(2). Separation offragments.

(3). Fibrinous effusion, especially when it consists merely of blood.

(4). Adhesion of tendons.

(5). Displacement of bone ends by fragments, and vicious union.

(6). Exostosis and osteophytic outgrowth.

(7). Absorption of bone.

(8). Involvement of nerves by pressure of callus.

(9). Thrombosis of veins, which may lead to obliteration of the deeper vessels, and more or less enlargement of the superficial veins.

(10) Edema, which may result from the above condition, or from simple pressure without preceding thrombosis.

(11). Chronic hydrarthrosis, which sometimes almost defies all attempts to subdue it.
(12). Arthritis deformans traumatica, which has been described by various authors, and is the occasional, though remote, result of fracture.
(13). Necrosis.
(14). Malignant disease.
This is by no means a complete list.

The pathological features involved in these cases are the following: The callus is not thrown out with the freedom nor in the same way that we see it in fractures of the shaf of long bones partly owing to the absences of periosteum on the articular surfaces, and partly to both bone surfaces being more or less bathed in synovial fluid; even when bony union occurs within the joint, the line may not be covered by cartilage and is often marked, but a grooved fibrous tissue may replace the ligating cartilage, but cartilage itself does not form to compensate for defects of this kind.

The causes of complete failure of bony union following these fractures are probably: Most often and first, separation and mobility of fragments; next, the influence of synovia; then, insufficient blood supply; and, finally, lack of external or ensheathing callus, which holds together and steadies the fragments. Loosened intra-articular fragments may be partially or completely absorbed.

In treating these cases more harm comes from too early efforts at positive motion than from too late. The first care in dealing with fractures implicating the joints is to give the most absolutely best fixation, with the most correct possible approximation of fragments, to which ideal results everything else is subordinate; and it is therefore a mistake to move these parts before such fixation has occurred. Plaster-of-Paris gives the most comfortable, serviceable, and accurately fitting splint that can be employed in fractures of the upper extremity, and the open or little splint is preferred by the author. The advantage of this kind of splint is that it is made for the particular individual, and no other; it fits him like a skin-tight garment, and in which, provided only the first requisite—that is, accurate reduction—has been provided for, the limb may rest for as long a time as is required.—*Am. M. S. Bul.*

Restoration of Joint Function After Fracture.

Roberts (*Phila. Polyclinic*) says: Early passive motion adds to the traumatism in fractures involving joints, and may thereby increase the formation of intra-articular fibrous adhesions. In aseptic cases it is unnecessary; in cases in which readjustment of the fragments is imperfect, it does no good; in septic cases, it increases irritation and does harm. It should, therefore, not often be employed.

Late passive motion is desirable to hasten the return of functional usefulness in joints stiffened by muscular rigidity after the fracture apparatus has been removed. It is also serviceable to break up intra-articular fibrous adhesions due to synovitis or arthritis resulting from fractures.

Massage, soaking in hot water, frictions with liniments, electricity, passive motion, and attempts at voluntary movement continued for months will often cause great improvement in the functional usefulness of joints supposed to be irretrievably damaged.

GYNECOLOGY.

Ovariotomy, Eighty-eight Quarts of Fluid: Recovery.

Reifsnyder (*Amer. Journ. of Obstet.*), describes two cases of ovariotomy performed on native Chinese women in the Margaret Williamson Hospital, Shanghai; both patents recovered. In the first case the patient was 23; the tumor weighed 80 lbs. The second patient was 25 years of age; she married at 19, and soon afterwards her abdomen began to enlarge. She had never been tapped. She was 4 feet 8 inches in height, and the circumference at the umbilicus was 5 feet 7¾ inches. She passed about 16 oz. of urine in twenty-four hours, free from albumen; its specific gravity was 1026. Her appetite was good, and the bowels acted once or twice daily. She had been unkindly treated as a sterile woman unfit for domestic work. After numerous precautions, ovariotomy was performed. Chloroform was given; her head and shoulders had to be somewhat elevated; she took but little of the anæsthetic. Eighty-eight quarts of fluid were removed; the tumor consisted of one large and one very small cyst; there were free adhesions superiorly. The empty tumor weighed 6½ lbs. There was no ascitic fluid in the abdominal cavity. The pedicle was long and about 2½ inches broad. The abdomen was washed out, then the wound closed with twelve silk sutures. There was much shock at first. After the first day, she passed urine voluntarily, and her bowels were moved forty-one hours after operation. On the second day, there was flatulent distension, the pulse rising to 102°. Rochelle salts were given. Her second night was the worst; she had two hypodermic injections of digitalin ($\frac{1}{100}$ grain), brandy by the mouth twice, one turpentine enema, and a capsule of turpentine taken by the mouth. Afterwards she did well. Her weight, two months after the operation, was 92 lbs.

OBSTETRICS.

Uncontrollable Vomiting of Pregnancy.

Purch (*Med. Mod.*) recently introduced a discussion on this question before the Societe Obstetricale de France. His patient, a hysteroneurasthenic subject, suffered very early, so he emptied the uterus, by the curette, at the sixth week, without loss of blood. The vomiting at once ceased. Circumstances contraindicted palliatives in this case. Gaulard believed that palliatives should be tried until there was a rise of temperature, which was a dangerous symptom. Charpentier stated

that he is now in favor of terminating the pregnancy as early as possible. During the first three months it is easy to get all the ovum away. He now introduces into the uterus a short stick of solid nitrate of silver, which is left to melt there. But in one case where a practitioner, fearing to use so strong a caustic, introduced a pledget of cotton soaked in 20 per cent. solution of nitrate of silver, the result was prompt and satisfactory. Disproportion between pulse and temperature is a grave symptom. Marduel related a serious case The patient had an insane blood relation. Bad vomiting set in during her pregnancy. Opium was given, and she then could keep a little food down, but symptoms of abortion appeared, the drug having probably killed the fœtus. Partial blindness set in. A laminaria tent was introduced; next day Fochier emptied the uterus under ether. This proceeding proved very difficult, the uterine walls and even the abdominal parties being bruised. The sickness ceased, but returned on the next day. A trace of albumen was detected in the urine. For a week the patient grew worse, becoming quite blind from retinal hæmorrhage and œdema around the disc due to cerebral mischief. A blister was applied to the nape. The sight was partly restored, and a few days later the vomiting ceased. Marduel's services were dispensed with too early; he was recalled, and found the patient delirious. She died on the same day, nearly a month after the induced abortion. Fochier, in reference to the difficulty of emptying the uterus when he operated in Marduel's case, observed that ether is a good anæsthetic for such work. The uterus must be well depressed when the finger is used to empty the uterus, as the placenta is very adherent in these cases.—*Brit. Med. Jour.*

The Fillet in Breech Labors.

Bar (*Arch. de Tocol. et de Gynec.*) exhibited at the February meeting of the Paris Obstetrical and Gynæcological Society, an infant, aged 2, with a deep scar on the right groin. It limped slightly, and the right thigh was four-fifths of an inch short. The mother at its birth was a primipara, aged 39; the child was then very bulky, and the fillet was used, as all other means to deliver the child, especially the forceps, had failed. Bar attributed the shortening to atrophy of the head of the femur following separation of the epiphysis due to the fillet. He exhibited a similar case where he had used the fillet. A deep incised wound lay in the left groin. A crack was heard during the extraction. The wound suppurated, and the child died of pneumonia. Charpentier admitted that he had damaged both soft parts and bones even when employing the fillet with the greatest care. Gueniot always aided the traction of the instrument by passing the hollow of the hand into the concavity of the sacrum, and exercising further traction. This provoked uterine efforts. Budin added uterine expression as an aid to the fillet. Porak believed in the application of two fillets, one on each thigh. Maygrier held that the fillet should be used in dorso-anterior, and the forceps in dorso-posterior, positions. By that principle fractures are avoided. Olivier protected the fillet by enveloping it in a rubber tube. In that way he had always avoided accidents.—*Brit. Med. Jour.*

Birth of a Child without Rupture of Membranes.

Dr W. M. Morison reports a case in the *British Med. Jour.*):

The patient was suffering from acute phthisis, with a temperature of about 101°. Two days before parturition she complained of severe diarrhœa, which was, however, quickly and easily controlled. Some time before she miscarried at the fifth month, and a day or two prior to it she had a similar attack of diarrhœa which was but the precursor of a second miscarriage. She was in her seventh of month pregnancy. Her surmise was perfectly correct, as in two days after she complained of some pains in the lower part of the abdomen. I was sent for, and on arriving there found a cyst-like mass protruding from the vagina. The labor was absolutely dry, not a trace of blood was to be seen, and the uterus contracted without any trouble. The recovery from the immediate effects was highly satisfactory, considering the advanced stage of phthisis in which the patient was. The membranes enclosing the fœtus were quite intact, and contained practically no amniotic fluid. The cord was pulseless, and no indication of life in the fœtus, which was otherwise a well developed seven months' growth. The placenta was normally attached, and the presentation was a breech. Children born with a "caul," as a condition such as this is called, are, when the child survives, a source of great satisfaction to the parents, especially parents of a superstitious bias, and such are very numerous yet, because of a supposed "luck" which smiles upon the path through life of those who make their entrance into this weary world shrouded in the mysterious garb of the mysterious world from which they come. In premature births is it not a fact that breech presentations are as numerous, or at any rate a more frequent occurrence than at full time?

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ORIGINAL ARTICLES.

THE USE OF ALCOHOL FOR THE PURPOSE OF COMMITTING CRIME.

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The impression that alcohol is used to create nerve vigor, and give power to commit criminal acts, is only true in a limited degree.

Crimes that are supposed to have been committed by persons who deliberately used spirits for this special purpose, are commonly found to have been stimulated and provoked by other causes. To give spirits to a person and encourage him to commit crime, may not be an unusual occurrance, but its consummation is an accident, and exceedingly uncertain. On general principles the natural tendency of an inebriate's mind is to ignore all restraint and obligation, legal, social, and moral. The higher governing centers are depressed and more or less paralyzed. The senses are deranged, and false impressions are constantly received, and the power of analysis and reason is diminished and broken up. All higher relations of duty are obscured, and only the lowest most transient impulses control the mind. At this time temptations to acts that are criminal, urged on the bewildered mind, may be acted upon, from simple incapacity to reason and understand the consequences. This blurred mental state is of short duration, and merges quickly into anæsthetic physical and mental states; or delusional conceptions, of which fear and suspicion are prominent. The use of spirits to give courage to commit crime very often produces the opposite effect, particularly where an interval occurs between the use of spirits and the performance of the act. Thus two men drank freely for the distinct purpose of placing obstructions on the track of a railroad. They walked two miles to a lonely part of the road, carried some rails on the track and laid down to rest, and were both killed by the train they hoped to wreck. The anæsthetic effect of spirits overcome all power of execution.

The courage or stimulation of the first stage from the action of alcohol on the brain, is of short uncertain duration, and liable any moment to change to abject fear or other states. A saloon keeper hired an inebriate to go and shoot an active prohibitionist. A very adroit plan was arranged to commit the act and escape without recognition. The inebriate was properly concealed at night to await the return of the victim and given a bottle of brandy. He shortly after fell asleep and awoke in a paroxysm of fear, and went over to the victim's house and confessed, asking forgiveness. Had the victim appeared soon after the use of spirits and concealment, he no doubt would have shot him, or attempted

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the act. The next moment after the act a revulsive feeling might have possessed him to acknowledge the crime and do everything in his power to remove the consequences. Or if this did not follow, he would display stupidity, and be childish in his efforts to conceal it. There are two conditions in which crime is committed by persons who drink spirits for this purpose. One where they become the agents of others, and accept and carry out the plans arranged for them, either tacitly as by power of compulsion of an idea, or desire to please another. Secondly the act is the materialization of a delusion which has existed before and has been stimulated into activity by the use of spirits, In the first case some hypnotic state, in which an idea becomes dominent exists. But this is very unstable, and while it may be increased by alcohol, is uncertain in duration, and liable to change any moment. Thus in a case where a man after a glass of spirits manifested delusions of suspicion that his partner was robbing him, this was increased by giving him spirits and reiterating the idea and suggesting criminal revenge. It was noticed that there was a certain brief period when he might execute a criminal act, but before and after it was very doubtful. The brain could not be depended upon, it might act in an entirely different way and from a different motive apparently. A negro who had often expressed a desire to kill a man who had injured him, was seen to drink deliberately, and go towards the home of this man. He returned in an hour and with great excitement gave himself up, saying he had shot this man. In reality he had become bewildered and laid down and slept, and dreamed he had committed the act. Criminals have been known to commit crime, then drink large quantities of spirits to throw off suspicion of sanity where escape was difficult. When arrested partially intoxicated, they denied all recollection of the act. This would very clearly resemble reasoning insanity, and would be open to serious question. A number of instances have been noted where spirits were used at the time of committing the crime, but as a rule this was the work of imbeciles who were clearly unable to act with any ordinary reason on any matters. Alcohol clearly predisposes to criminality by lowering and paralyzing the higher brain centers which preside over consciousness of right and wrong. The immediate effect of spirits is to cause impulsive petty acts. For the present moment such acts might materialize into serious crime, but it would depend upon favorable conditions and surroundings. The unstable condition of the brain made so by alcohol, is more or less incapable of sustaining a preconceived idea and carrying it out, especially if time and continuous drinking follows. This is the rule to which there are exceptions, but these exceptions clearly follow certain circumstances which are easily traced. Often it is claimed that spirits are given for the purpose of obtaining undue influence in the making of a will or signing a contract. This is confirmed by a clinical study of cases, and facts pointing out the impulsiveness of the act, and absence of deliberation or forethought. Delusions and misconceptions of acts and motives are very common in all inebriates. Faulty reasoning, childish credulity and general failure of capacity to discriminate, and adjust himself to the conditions and surroundings, must of necessity result in wrong doing.

Although in many cases this condition is covered up, and only when the person acts along unusual lines is it apparent. All contracts and wills written by inebriates should be subjected to careful scrutiny. Not infrequently such acts display sound judgement, and it is found that they are the culmination of previous conceptions. Where they manifest imbecility and strange motives, it is clearly the workings of an anæsthetic brain, acting from suggestions from without or deranged impulses formed within. While a very large number of inebriates act rationally in ordinary affairs of society and business, and do not commit overt acts that come under legal recognition, it is a question if this is not the result of accident and conditions. There are strong reasons for believing, that a slight change of surroundings both mental and physical, would explode the degeneration which exists and manifest or bring to light insanity, criminality and idiocy. Instances are not unfrequent of acts of lawlessness and crime in inebriates previously law-abiding and honest citizens. It was not the last use of spirits which provoked the act, this only exploded a condition which had been gathering like a storm,

long before. The direction and form which this disturbance would take could not be foreseen.

The designing man who gives spirits and suggests crime, and wrong doing, is in peril of being the victim himself. He is practically exploding states of insanity, and trusting that he may be able to control it.

The inebriate or moderate drinker who uses spirits to give courage to commit some act, makes the same blunder of supposing that he can paralyze the higher governing centers and still direct and control the lower faculties. Where imperative ideas and delusions already possess the brain, alcohol may intensify them for a time, but confusion and uncertainty of thought and act is inevitable.

The claim that alcohol is used for the purpose of committing crime should be a question, open for evidence and one to be considered doubtful, until proven by facts that can have no other meaning. Crime committed when under the influence of spirits, will be found as a rule to follow uniform lines and be very much alike in methods of execution. If spirits have been used for the special purpose of facilitating the commission of crime, very wide differences will appear. No two cases will be alike, and doubt and uncertainty will complicate the factors in every case.

GRANULAR LIDS; WITH CASES IN PRACTICE.

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Synonyms. Trachoma, Granular Ophthalmia, Egyptian Ophthalmia, Follicular Trachoma.

Definition. An inflammation of the conjunctiva, accompanied with a contagious discharge containing micro-organisms, and extending over a period of months or years.

History. During the ages no disease of the eyes has produced so great a mass of literature.

The first is in the Vedic Writings where reference is made to "the small, red, soft and fleshy excrescences in the lids"—and to "copper and scarifications." But the ancient Egyptians were the first to give us oculists and "scarifications."

Celsus described it; and the ointment pots found in the tracts of the legions attest to its prevalence among the Romans.

Scarifications and removal of the scalp between the temples over the forehead were practiced for trachoma in those days.

Napoleon brought the disease with the French army from Egypt and it spread over Europe.

Its prevalence among the Indians of America dates back to the Aztec civilization.

Etiology. Bacteriologists show us a diplococcus in these cases, and Kock found two varieties in Egypt.

The fornix of the conjunctiva however is a perfect incubator for these bacteria, and they have been found in normal conditions! The secretion is contagious, and I have often seen the disease in nearly all its stages in the same family among the Algonquin Indians. It is more prevalent among those living in low lying districts, and rare among the mountaineers. The negro race is quite exempt, while it is very prevalent among the Finns, and American Indians owing in part to the low damp, and smoky rooms in which they dwell.

Pathology. This is unsettled, but there takes place a dilatation of capillaries from toxic paralysis of vessel walls causing lessened resistance pressure and slackened circulation.

Adenoid tissue, the "sentinal tissue" of the physiologist, is increased, lymph follicles or trachoma granules come into view when not obscured by papillæ, during acute catarrhal conditions.

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In the fornix are acinous glands or analogous Krouse's glands presenting forms resembling the "globlet cells" of the intestines. Hence so called. The micro-organisms are in the follicles.

The trachoma coccus is a diplococcus smaller than the gonococcus.

Fibro-albuminoid exhudations take place and gelatinous degeneration of sub-conjunctival tissue. The central portion of the follicle breaks down; resembling in this tubercle.

Leucocytes, plasma, and cells abound. Softening of cartilages sometimes. Cellular elements, go into cicitricial tissue, and fatty degeneration of epithelium follows with contractions and deformity of lids.

This degeneration when extreme may induce an exerosis that extends to the cornea. Here micro-organisms are present the same as are often found in the epithelium of the pelvis of the kidney in pyelitis. Cultures from these have produced the corneal conditions to which reference has been made.

Symptoms and Prognosis. In mild cases of trachoma little may be seen except the frog-spawn-looking bodies in the basis of the palpebral folds especially the lower ones. They are sometimes of the same color as the conjunctiva they may resemble condyloma or they may be quite obscured by hyperæmic stages during acute attacks of conjunctivitis. The discharge may be slight or quite free during acute catarrhal periods.

The sticky nature of the discharge, and not its yellow color is characteristic.

Astheuopic symptoms are more or less present. Photophobia, and lachrymation marked in agravated cases with corneal complications. Cases recover spontaneously sometimes. Young subjects and recent cases are more favorable, while severer forms in badly conditioned adults generally leave permanent injury to the conjunctiva, and may impair the function of lids and cornea. Neglect and unfavorable envivonments play a sad roll in many cases, leading to complications destructive of useful vision.

Complications. Pannus, mechanical ptosis, ulcers of cornea, entropion, trichiasis, distichiasis, staptyloma of cornea, and xerosis are among the more frequent.

Treatment. The therapeutics of trachoma as far as local applications are concerned may be divided like music into two kinds, stirring and soothing. Using the one or the other as acute or chronic conditions predominate.

The agents most generally found useful and the conditions for which they are employed will best be conveyed by a reference to the cases cited. The general health must be improved by conforming as far as possible to all the laws of the Godess Hygiea, and in some cases steel, cork or oil with tonic doses of mercury may be given with advantage.

CASES.

I. Miss B. aet. 18, Nov. 1883. had trachoma, pannas, and ptosis, both eyes. Lids were with difficulty everted, when warty looking growths came into view. A 2 per cent. sol. of cocaine was used and larger cut off with scissors. Ung. Oxidi Flar (gr. ii.—℥i. vaseline) applied to the granulations each night for a few days, after which time copper sulphite used twice each week in office or by patient's father at home for two years almost continually when the trachoma, and its complications had disappeared.

II. Miss G. aet. 20, July, 1884, had trachoma and pannus both eyes. Pauni completely covering cornæ. Jequerity puldusted in both, caused œdema of lids, and profuse suppurative inflammation. Iced cloths and vaseline used for three days. Bovic acid sol. as a wash. The left was at the end of a month so much benefited that patient could see to go about without assistance. The almost complete disappearance of the trachoma, and pannus in the left was remarkable. The right was not benefitted to so great an extent, and the jequerity powder failed when applied again to this eye to produce any appreciable effect.

III. Mrs. S. aet. 30, June 1887, trachoma, more marked in right eye, where pannus was present on upper half of cornea. When first seen secretion was free owing to acute conjunctivites being present. Sol. atsepia (gr. ii.—℥i.) and boric acid wash used for a few days until acute symptoms had subsided. Tannic acid and glycerine; (saturated solution), alternated with Lapis Divinus was applied in office or at her home twice a week for one year unless acute catarrhal symptoms presented themselves, when recourse was had to the more soothing treatment men-

tioned. These acute attacks were neither severe nor frequent, and at the end of one year the patient was free from the trachoma. The pannus had gradually disappeared.

IV. Miss M., aet 18, trachoma, distichiasis and koritiitis both eyes. The lashes irritating the cornæ were removed. Atropian and boric acid sol. were ordered. After two weeks My. Hyd. Oxid. Flor. was applied each night and copper sulphate twice a week.

The offending hairs when returned were destroyed with electroysis, and returning hairs again and again so treated until all were removed. "The blue stone" and ointment were continued almost continuously for two years at which time the patient was free the condition stated.

V. John M., aet. 10 Oct. 1894, had frog-spawn looking trachoma both eyes. Cocaine sol. 2 per cent. applied every five minutes for fifteen minutes. Noye's trachoma forceps was used to express trachoma granules. There was some pain during the operation, but little reaction following it. After a week blue stone was applied daily for six weeks when conjunctivae appeared free from trachoma.

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STAPHYLOMA OF THE CORNEA—PANNUS.*

R. M. LAPSEY, M.D.,† KEOKUK, IA.

To-day we show you the woman upon whom we performed an iridectomy two weeks ago for an ectasia of the cornea. The case is one of very great interest to me. She has been troubled with exophthalmic goitre for about five years, and you will remember how prominent her thyroid glands were, and that her eyes protruded forward so you could nearly see the posterior surface of the sclera when she turned her eyes to the side.

About ten months ago she had the influenza, and following this she says had ulceration of the eyes. Since then she has been able simply to recognize light from darkness and has presented a pitiable sight. Almost the entire lower half of each cornea is protruded forward and is whitened, forming a condition commonly called staphyloma of the cornea, but as this means a protrusion of the iris through a corneal perforation, we will call this a keratectasia, as the cornea is protruded forward also. The pupil was drawn into this protrusion also leaving the iris in the form of a curtain behind the clear cornea. The tension was also somewhat increased and the anterior chamber shallow. This condition with the exophthalmus made the eyes very prominent. These conditions being present, we found three indications for an iridectomy; *first,* for the purpose of giving the patient vision through an artificial pupil; *second,* to lessen tension by establishing the. connection between the anterior and posterior chambers; and *third,* for its tendency to lessen the ectasia of the cornea. We thought the case somewhat unfavorable from the presence of the exophthalmic goitre, but I am glad to say we accomplished more than we expected.

The iridectomy was done on the left eye as being the the one most favorable, and was necessarily done upward as the only clear cornea left was above. She has also been under treatment for her goitre by the use of the tincture of the chloride of iron as a tonic, and tincture of strophanthus, and you will readily no-

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tice a marked improvement. Her color is better, her thyroid glands smaller, her eyes less prominent, and she is better in every way.

The improvement in her vision and the condition and appearance of her eye that was operated on is what I want especially to call attention to.

The tension is lessened, the ectasia less prominent, and the artificial pupil we made is clearly shown. I tested her vision this morning and was very much gratified to find it 12-200, and it has been growing better ever since. I removed the bandage, and, I think, it will continue to grow better. We have, therefore, met all of the three indications we spoke of by doing the iridectomy, and it has partially succeeded in them all. After the operation we kept her eye bandaged over a week, although the corneal wound itself healed up very nicely and promptly. We hoped by this to help to lessen the ectasia of the cornea. This case, I hope, will impress on you what corneal ulceration may result in and also the importance of proper treatment.

She refuses to have the other eye operated upon as she thinks this good enough and says the other operation hurt her some. We used a four per cent. solution of cocaine, but she tells me she has been using a solution of that strength ever since her trouble ten months ago, and I think on that account she was less susceptible to the effect of it.

I might say here, that all operations on the anterior portion of the eyeball can be done usually without pain by making use of cocaine, and I have even seen eyes enucleated under the influence of cocaine. A four per cent. solution will produce anesthesia of the cornea and also of the iris, if it is allowed ten to fifteen minutes time to act. Cocaine is also of value in minor operations by using it hypodermatically.

We will now allow the patient to return to her home, as she is very anxious to do so, but we will request her to continue the course of treatment recommended for her goitre for some time to come.

The patient on going home was able to recognize her little girl at the station although she was not expecting to see her, and in the ten months since she had seen her, the child had grown considerably. She is now able to do her own housework and to go around the streets alone.

Case II. The next case, I am glad to show you as an excellent example of one of the terrible sequelæ of trachoma of which I spoke in my lecture yesterday, a condition of pannus affecting the entire cornea, so that the patient is only able to tell light from darkness.

The patient before you has been a cowboy on the plains and he says it was there that he was first troubled with granular lids or trachoma, and it has been about twenty years since his first trouble. He has been treated with nearly all the remedies used in trachoma and pannus, and has gradually grown worse so that for about six months he has only been able to tell light from darkness, has photophobia, and is kept in a dark room. The cornea is opaque throughout its whole surface, and is vascular. The lids themselves are somewhat hypertrophied and have some secretion, but the principal difficulty is now the condition of pannus which has followed the conjunctivitis. There is a reflex present here which is rather rare, and fortunately so, as it is very annoying to the physician, and that is whenever his eyes are touched either for examination or treatment, it starts an attack of sneezing, which continues until the examination is completed.

The prognosis of this case is not good. He has already had nearly every known remedy employed, and has suffered much from many doctors, and like the man in the Scriptures, has "rather grown worse than better." This is a case in which I should advise the use of an infusion of the jequirity bean for the production of a violent inflammation. The theory is that a violent inflammation is produced with the formation of blood vessels, and that during the process of healing, the exudate is carried off leaving the cornea clearer than before. This is a heroic method of treatment, but as this is a desperate case, I think it would be appropriate. His eyes certainly could not be much worse than they are at present. Infection with gonorrhœal virus is sometimes employed for the same purpose, that is, the production of a violent inflammation with the hope that on recovery the cornea would be clearer. There is danger of affecting the other eye, and also other people with this virus, so jequirity is a safer remedy.

As this patient is now in the poor home, and there is no one to carefully carry out this treatment, we will have to satisfy ourselves with something else for the present unless we can get him in the hospital. I will therefore, recommend the use of tannin ʒi in glycerine ℥i, to be dropped in his eyes once a day.

I have found this of great value in less severe cases than this, and consider tannin and glycerine in varying strengths a very valuable stimulent for the patient's use. I will prescribe it here not in preference to the jequirity treatment, but because it seems to me the best treatment I could have used at present.

COMMUNICATIONS.

ERASION, EXCISION AND AMPUTATION IN JOINT DISEASE.*

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From failure of early diagnosis, from lack of early treatment, and from the neglect of early protection and fixation of inflamed joint surfaces, or on account of the intensity of the tubercular process, a large number of cases of tubercular joint disease still require operative procedures for the safety of the limb or the life of the affected individual. Fortunately, owing to a better appreciation of the conditions, these cases are becoming rare; it being more generally recognized that destructive results are preventable by early treatment; that is, by long-continued protection secured by rest and by effective mechanical devices. Proper management of these cases will result in the saving of a large number of these joints, even if the tubercular bacillus has secured a foothold in the osseous structures adjacent to the joint itself.

Much will depend upon the joint invaded; but the same principles of treatment will apply to all. The treatment may be summed up in the one word *rest*. This condition may be induced either by fixation, by extension, or by both. As a result, however, of the causes first enumerated many joints become so thoroughly implicated by the tubercular process that removal of the offending and dangerous foci becomes imperative.

Erasion (improperly termed arthrectomy) aims to remove by gouge and spoon and scissors the diseased hard and soft parts only; excision or resection goes a step further and takes away not only the implicated structures, but also an outlying area of bone; it is, therefore, still more radical, and aims to keep well outside of the disease. Amputation sacrifices a large portion of healthy tissue lying on the distal side of the diseased joint and is therefore still more mutilatory.

The proper application of these several operations to individual cases, therefore, demands a discriminating and judicious consideration. The decision will vary with the joint involved, the extent and character of the disease, the age and condition of the patient, the dangers of systemic infection, the risk to life, and the ultimate results to be obtained as regards locomotion.

As erasion is the least multilating and is both theoretically and clinically so effective an operation, it has steadily grown in favor, especially as it renders possible the continuance of function in a considerable proportion of cases. It is also, as a rule, a less severe procedure; while it leaves excision and amputation, the two more radical operations, still in reserve. Even should the more serious operation follow, the loss of time especially in chil-

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dren, will be more than compensated for by the increased growth of the limb.

WRIST AND ANKLE.

Erasion.—The ankle, wrist, tarsus and carpus may be considered in a single group, as the course of the disease in these joints is closely allied. The complicated character of the articulations involved makes extensive infection of the area very probable, and conservatism is almost universally recognized as the proper course of procedure.

The exclusion of all operative methods, as advocated by some authors, is unwise, and radicalism as to early amputation is equally wrong. A large number of these cases can be saved, and a useful walking member with movable joint can be obtained by the proper application of simple *erasion;* that is, the removal of diseased structures only and the continuance of proper mechanical appliances. Subsequent progression depends largely upon the situation of the foci. In an extra-articular ostitis that has involved cancellous tissue chiefly, the chances of securing good results by erasion without joint infection are excellent. By thorough removal and subsequent injection of anti-bacillary substances, arrest of the tubercular process is common. I have frequently secured excellent results by repeated gougings of small areas as they appeared and the joint surfaces have entirely escaped contagion.

In young cases, where time is not a very serious matter to the patient compared to the benefit to be obtained, these repeated operations are most helpful, as excellent movable joints are thereby secured. In more serious cases, the disease will involve the tarsal or carpal articulations, and extensive removals may become necessary; yet, in many even of these cases the disease can be eradicated without loss of limb.

For these reasons, conservatism, even though carried to an extreme degree, is desirable, save in those cases where the tubercular process is intense and the resistive power slight; in the latter cases, amputation should be thoughtfully considered. In erasion, knife, scissors and gouge are to be employed until apparently normal bone is reached. Whenever it is impossible to avoid the osseous structures underlying the cartilage the operation should be arrested, since cartilage is almost certain to die and implicate the adjoining articulation. It is impossible to be certain when all the invaded soil is removed; but fortunately, nature is able to overcome a moderate number of bacilli, and it is not well to open and invade any unnecessary articulation. When in close proximity to an articulation a certain number of cells, even though left behind will be destroyed by phagocytic action, or a second operation may be undertaken.

Portions of the tarsus and carpus which are liable to infection and can not be reached through the wound may be helpfully influenced by cataphoresis; that is by driving iodoform into the tissues by the positive pole of a battery, using a current of about 5 milliampéres. By this method, or by hypodermic injections of iodoform in the region of the joint, the progress of the disease can often be arrested.

The incisions for erasion will vary with the site of the infected area, but for large removals I prefer the long lateral cuts as in excision.

The only guide as to the limit of removal is the extent of the disease. In children, the epiphyseal line should be avoided if possible. Unfortunately, however, in cases which demand excision, avoidance of this line is seldom feasible. The removal of the end of the tibia and fibula, together with the astragalus, necessarily shortens the leg very seriously, and ordinarily results in a stiff joint. In a large number of cases it is doubtful whether the patient is as comfortable as he would be with an artificial limb; practically nothing can be gained in growth if the lower epiphysis is removed.

In the carpus after operation, thorough fixation should be enforced by plaster-of-Paris, or other dressing, which will prevent motion and relieve the resulting inflammation. Drainage, cleansing and local injections of sterilized iodoform oil (10 per cent.) are essential in the after-treatment.

At the ankle and tarsus, the inflamed parts must be absolutely protected from the weight of the body; not for an instant should a step be taken upon the diseased member. Crutches should be used, both before and after operation.

Thorough drainage is necessary and demands the most careful attention to prevent subsequent contamination which will increase the suppurative process. The

great fault in such cases on the part of the surgeon lies in his failing to continue asepsis. A wound can escape contamination for weeks and even months, but only by the most scrupulous attention to the laws of cleanliness. I have seen chronic sinuoes kept sweet for eighteen months, but it demands "eternal vigilence."

At the wrist the lateral incisions will frequently give good exposure, with the least injury to important structures.

For reaching the tarsus and carpus the only rule to follow is to avoid vessels, nerves and tendons as much as possible and yet secure thorough removal. Many surgeons employ one or two long dorsal longitudinal incisions with transverse cuts if necessary. If tendons or nerves are cut during the operation they should at once be sutured with sterilized silk or catgut chromicized. If one incision only is used at the wrist, it should extend from the middle of the first metacarpal well upward upon the radius. As tendons are divided the ends should be grasped with forceps, marked in pairs.

Excision.—A formal excision is desirable in more advanced cases where the process has advanced to large destruction of bone tissue, surrounding one or more of the articulations, where the general health presents evidences of succumbing to the disease, yet where there is reasonable hope of saving the limb from amputation.

The ankle or wrist joints are first involved ordinarily, although the tarsus and carpus may be primarily the seat. In the latter case, amputation is the more common, especially in tubercle-saturated patients.

In operating upon the ankle, the line of incision will vary with the exigencies of the case, but I have found that very satisfactory exposure can be made without injuring the vessels, nerves and tendons by two long, lateral, curvilinear incisions, which can be extended as desired by cross cuts when both the astragalus and malleoli demand removal. The peroneal tendons are difficult to hold aside, but can frequently be saved by using a retractor, or by carrying around them a thread of silk, which is less in the way of the operator. If divided they should be sutured with silk or chromicized catgut. In the tarsus, I rarely make a cross dorsal cut (although the tendons can be sutured), as I am able to make a satisfactory atypical excision through long lateral incisions. I have never employed an osteoplastic operation, even when the os calcis had to be removed.

The most useful saw for joint-work is a key-hole saw made on the principle of Adams' blade, but with a longer cutting face. This can be easily managed and can be manipulated without injury to the surrounding parts. A strong, S-shaped bone retractor is also useful for lifting out the tissues and protecting them. A strong blunt knife is also of advantage in making the dissection.

Amputation is often necessary in extensive destruction of joints and especially in adults.

KNEE.

In children under 12 years of age it is exceedingly important to preserve the epiphyseal line in order to secure growth for as long a period as possible. Erasion is, therefore, preferable to excision in all cases where it can be done effectually. The incision varies with different operators; I do not deem it of any special importance. My preference is the horse-shoe flap with the convexity downward, as stitching of the tendo-patella can be more easily accomplished than suturing of the sawed patella when the straight incision is employed, and better drainage can be secured than when the convexity of the flap is upward; moreover, it gives excellent exposure of the articular surfaces and thorough examination can be made. In some cases lateral incisions alone are sufficient to permit removal when the foci of disease are few. The spoon, gouge, knife and scissors should be thoroughly employed until all the diseased hard and soft tissues are removed; the hollow-handled flushing spoon being particularly useful to carry away the *débris*. Diseased synovial membrane throughout the bursa should be thoroughly removed even though patient search is required. Boiling water may be freely used to destroy the remaining bacilli, or the cavity can be filled with an alcoholic solution of acetanilid or a sterilized glycerin emulsion of iodoform.

In a few cases it will be possible to close the wound without drainage, but where purulent infection is decided, it would be be better to drain with rubber tubing for at least a week.

In cases over 12 years of age, and in adults where the destructive process is

not too extended, a formal excision is usually preferable, although erasion can sometimes be profitably employed, particularly where infection seems moderate. In the latter case, lateral incisions with scraping and drainage are rarely sufficient.

As to the incision, the same rule applies as in erasion. In an adult, particularly, the incision should extend well above the diseased bone, and all the foci should be gouged unstintingly. A butcher saw with reversed blade to saw from within outward, with proper protection of the parts beneath, is an excellent instrument. Occasionally, the key-hole saw answers nicely, but the angle of removal can not be so accurately determined as with a larger instrument. It is very important for the surgeon to train his eye to make the section at such an angle as to bring the tibia in good line with the femur without a second cutting. As a rule, the popliteal tissue will yield sufficiently to permit the straight position; but if there is still interference the contracted tendons can be divided.

The patella need seldom be removed unless diseased, as it is of service if the tendon is stitched *in situ*.

Amputation—In children, the cases demanding primary amputation will be few; but occasionally the destruction of bone and joint by saturation is so extensive that removal is the only operation promising hope of life. In adults, the removal of the limb may frequently offer the best hope of life and of usefulness.

As to suturing of the bone, I prefer to trust to external appliances. If plaster-of-Paris is properly applied, good results can be secured, but a bracketed splint for adults is sometimes useful. A plaster cast can be freely opened on either side and the anterior and posterior halves can be removed for dressing, while the limb can still be held in good position without disturbance of the parts.

With thorough asepsis, dressings are infrequently required, and in children there is less disturbance and pain. Drainage tubes should be removed early. After healing, an apparatus should be worn until all tendency to deformity has disappeared.

HIP.

The question of erasion at this joint is one which depends largely upon the amount of disease, the age of the patient, amount of suppuration, etc. It certainly is an operation far less successful in this joint than at the knee, ankle or wrist.

In cases demanding early opening the pains are often severe and nothing short of complete excision of the upper end of the bone is advisable. In a few cases, however, where the exploratory incision demonstrates fairly good joint surfaces, the foci of disease may be removed by gouge, and the loss of bone substance and consequent shortening so frequently found in excision in young children may be avoided.

In osteomyelitic cases this puncturing of the bone with subsequent drainage is useful.

The disadvantage of erasion lies in the fact that it is almost impossible to decide as to the limit of the disease, and the continuation of the process ultimately demands excision; the latter operation is therefore the one employed by the majority of surgeons, as its results are beneficial in shortening the time of suppuration, and a fairly good walking member is secured.

I realize thoroughly that operative interference tends to disseminate the tubercle bacilli and, if undertaken, the extirpation should be thorough; hence the desirability, as already stated, of complete removal.

The two most practical routes by which the joint is to be reached are the anterior and lateral incisions; the anterior incision is the most suitable for exploration and where sinuses have already formed in this region. This incision is made so as to interfere as little as possible with the muscular tissue, the cut being begun just below the anterior spinous process and extending downward as far as necessary, the object being to enter the joint between the sartorius and rectus on the one side and the tensor vaginæ and glutei on the other. By this route, both muscles and blood vessels are uninjured. When the neck of the bone is reached the capsule can be divided, exploration of the head, neck and rim of the acetabulum can be made, and the amount of the diseased bone decided upon. A strong blunt knife assists greatly in the process of clearing the bone, and the neck can be divided without injury to the surrounding tissue, with a narrow key-hole saw, guided and guarded by the finger.

The head of the bone is often with difficulty released from the socket. This may be accomplished before section of the neck by manipulation of the femur and the use of a blunt knife or, as I usually prefer, after section of the neck by grasping the fragment with strong lion-jaw forceps. The ligamentum teres, if intact, must be severed. I have found a flexible knife, which can be made to conform to the acetabulum, useful in dividing this structure. All the diseased structure should be removed from the acetabulum and the surrounding area with thorough flushing, and with perfect asepsis the wound may sometimes be closed and perfect union secured. The joint should be filled with iodoform oil. In bad cases both gauze and rubber drainage should be employed for the first few days, the gauze being removed at the first dressing, and the rubber tubing as rapidly as possible.

When the suppurative process is severe, a posterior opening may be made and thorough drainage instituted. This method is most useful in the cases already described, or where the head of the bone has become separated and lies as a sequestrum.

In old or largely suppurative cases the lateral incision over the trochanter is desirable, as it gives a larger exposure of the joint, and when the trochanter is to be removed it is decidedly better. Whenever it is possible to strip off the trochantic attachments of muscles in a comparatively healthy bone, this method should be employed, as subsequent motion is thereby improved. As the femur is often extremely fragile in these cases where the ostitis has extended throughout the entire shaft, great care should be taken not to fracture the limb, especially in making rotary movements.

If the disease seems to have a definite limitation it will be better for subsequent locomotion to leave the trochanter, even if the drainage is somewhat interfered with by its retention. In these cases the drainage may be supplemented by a posterior opening, which often compensates for lost lateral space.

The power to steady the femur upon the pelvis is so important in locomotion that the retention of all possible muscles is essential, consequently I retain the trochanter whenever it is safely possible. I can show cases of excision when the femoral head and neck have been removed through an anterior incision, that can stand upon the toes of one foot without assistance and flex the thigh upon the pelvis beyond a right angle, can abduct and adduct the limb and have no deformity but shortening, a result which is a great improvement upon the condition attained after excision of the trochanter.

The majority of hip excisions, however, leave the patient a cripple for life, which readily accounts for the persistence with which many surgeons adhere to the conservative methods of treatment, and as an ankylosed limb in fair position is usually more serviceable for locomotion than an excised joint, the resection should not be undertaken until it is certain that suppuration will occur or that danger to life will ensue by delay.

The results to be feared are the exhaustion from long drainage, amyloid degenerations and general tuberculosis. While excision aims to remove the dangerous tubercular foci, yet the operation sometimes rapidly disseminates the disease. In a child with a bad antecedent history, an excision should be performed earlier than in a healthy child. Long continued, or very profuse suppuration also calls for surgical interference to avoid waxy degenerations. When in doubt, an exploratory incision is advisable, especially if suppuration is present.

In general, a case which is progressing unfavorably in spite of good mechanical treatment, with evidences of systemic infection, demands interference. Acetabular disease, when manifested by suppuration within the pelvis, is best arrested by thorough removal and drainage. Amputation is usually reserved for adult cases with old and suppurative sinuses and marked caries.

ELBOW.

In this region, erasion is decidedly the best operation for young children: by careful gouging of the diseased areas a very fair member can be secured. Whenever possible, the attachment of the biceps and triceps should be left intact. When the entire bone must be removed the retention of the periosteum, if healthy, at the points of muscle insertion is advantageous. Quite frequently the cancellous tissue of the olecranon can be gouged without disturbing the insertion of the triceps.

The incision for erasion may be lateral,

but a focus in the ulna is rapidly reached by a cut made directly over the olecranon. For formal excision, a posterior long incision directly over the olecranon, or two lateral posterior ones with cross cut, will give good exposure and save also the ulnar nerve.

The head of the radius is liable to disease, but section of the neck will often permit retention of the biceps. I have not found much difficulty in drainage, even when I have sawed through the olecranon and left it *in situ*. For excision, the narrow saw and ronguer forceps are the most useful instruments in addition to the gouge and curette. Care must be taken to remove every particle of diseased tissue, whether excision or erasion is employed, and the parts should be flooded with bichlorid and afterward with iodoform oil and other antibacillary substances.

Drainage tubes should not be retained too long. Plaster-of-Paris makes the best subsequent dressing, as the cast can be made thick at the bend of the elbow by longitudinal reverses, thus giving strength to the dressing when the windows are cut. Amputation is seldom required except in adults or in the worst class of cases.

SHOULDER.

The rarity of tubercular disease at this joint makes it difficult to speak with certainty as to definite results. My personal experience has been so limited that I can not speak from that standpoint, but my opinion is that erasion is decidedly the best operation for this region, and that it should be done as early as possible, as soon as the presence of pus is determined. The incision should be made so as to avoid as much as possible, interference with subsequent muscular action, and the vessels and nerves should be left unmolested. I have never seen an amputation for this condition.

CONCLUSIONS.

1. When operative measures are demanded, erasion is the preferable procedure, as it gives less subsequent deformity and results in better locomotion. This operation is especially applicable at the ankle, wrist and shoulder, frequently at the knee and elbow; rarely at the hip.

2. Excision is most useful at the hip. It is also largely employed at the knee and elbow; more rarely at the other articulations.

3. Amputation should be employed in rapid and extensive degenerations at the ankle, knee, wrist, elbow, and in old hip cases which have relapsed after excision.

4. In children, the less mutilatory operation should be first employed, even though repetition is required; but in adults, temporary operations are seldom advisable.

5. The necessity for operative treatment in joint diseases arises from neglect of proper mechanical measures. Protection and fixation of the joint in the early stages of tubercular invasion will nearly always result in a cure with movable joint and good function. These measures together with antibacillary injections and cataphoretic in-driving of iodoform are steadily decreasing the number of cases demanding operation. Motion and traumatism are the chief causes of inflammatory complications in tubercular ostitis, and often result in such an amount of suppuration and loss of bone as to demand removal of the diseased tissues.

Diphtheria Antitoxine by Electricity.

Dr. Nencki, of St. Petersburg, has succeeded in producing diphtheria antitoxine by means of electricity. His method is the following: Procuring by cultivation, in the ordinary way, a very virulent diphtheritic broth, he passes through this solution a continuous current of electricity of from 100 to 200 milliamperes for eighteen hours. The broth thus treated was found to be capable of curing a rabbit of diphtheria which had been inoculated with the disease eighteen hours before.—*Mod. Med.*

Treatment of Gastric Ulcer.

The method proposed by Boas, and which we have used successfully in several cases, consists in giving the stomach absolute rest, and feeding the patient by means of an enema consisting of six ounces of milk thickened with a little startch, two eggs beaten, and a half dram of salt. This should be administered once in four hours, while the patient is awake. Care should be taken to wash out the rectum at least twice a day.—*Mod. Med.*

THE TREATMENT OF LACTIC ACID EXCESS IN THE STOMACH.*

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From a series of recent investigations, Boas concludes that lactic acid is not present at any time during digestion in a normal stomach; whereas, it has been taught, heretofore, that lactic acid is present in healthy digestion during the first thirty or forty minutes after the ingestion of food. Now, it is stated that not only is lactic acid absent at that time, but at all periods of the digestion of a test meal, whether early or late; whether or not the motion of the stomach is normal or tardy; whether or not dilatation of the stomach exists; and whether or not hydrochloric acid is present. Only one morbid condition of the stomach, so says Boas, is accompanied by the presence of lactic acid, and that is carcinoma. In this disease, lactic acid is said always to be present, and Boas further holds that when it is found in the stomach after a test meal it is diagnostic of gastric carcinoma.

Notwithstanding that Boas has thus found lactic acid only in malignant disease of the stomach, my experience in the matter has been quite different, as I have found lactic acid in the stomach during the first part of normal gastric digestion and also under abnormal conditions, such as persistent diminution in the secretion of hydrochloric acid, an absence of free hydrochloric acid, sluggish motility, gastrectasia, and malignant disease, especially when so located as to cause pyloric stenosis.

In the large majority of cases the treatment of lactic acid excess simply resolves itself into the treatment of its cause, but in some cases the cause may not be removed except by surgical intervention, as in gastrectasia from cicatricial pyloric stenosis, and in these cases remedies are demanded which will lessen as far as possible the production of lactic acid and neutralize it after it is produced, thereby preventing the nausea, vomiting vertigo, headache or other distressing symptoms, that are largely due to lactic acid poisoning.

In a short paper upon "The Role of Lactic Acid in Gastric Digestion" (*Medical News*, Dec. 30, 1893,) I mentioned several of the causes of the abnormal presence of lactic acid in the stomach. The first of these causes is a deficient secretion of hydrochloric acid, which may result from chronic catarrhal gastritis, from gastric carcinoma, from debilitating disease, as tuberculosis, or which may appear as a secretory neurosis.

The presence of hydrochloric acid in the stomach in normal quantity is usually antagonistic to lactic acid fermentation owing, probably, to its antiseptic properties; therefore, the endeavor should be made to reëstablish a more abundant secretion of hydrochloric acid by treating the cause or causes of its diminution.

In the case of catarrhal gastritis, lavage with the use of boric acid or boroglycerid solution and the aqueous fluid extract of hydrastis is very useful. It is a good plan to wash out the stomach three or four hours after a meal, so that some contents yet remain for chemical and microscopical study, using, at first, until the viscus is empty, simply warm water, preferably that which has been filtered or boiled, then using boric acid or boroglycerid solution, and, finally, to pour in a mixture of the subgallate of bismuth with the aqueous fluid extract of hydrastis, a part or all of which may be left in the stomach, according to the amount used. At another sitting, a weak solution of nitrate of silver (2 grains to 8 ounces) may be used after the mucous membrane is perfectly cleaned. This is one of the most effectual washes in catarrhal gastritis. The scope of this paper does not permit a detailed discussion of the local and general treatment of gastric catarrh, but simply to emphasize the importance of removing the causative elements behind lactic acid fermentation. While the various measures used to restore the proper secretion of hy-

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drochloric acid, when it is persistently below normal, are being carried out, the administration of hydrochloric acid, about thirty or forty minutes after meals, in 20-drop doses of the dilute acid, assists materially in temporarily staying lactic fermentation and in relieving the patient of weight, distress or flatulency.

If the cause of lactic excess is found to consist chiefly in impaired motility of the stomach, strychnin or nux vomica in liberal doses before meals, or two hours after meals, is attended with benefit. Also, the application of the interrupted current directly within the stomach stimulates and strengthens the musculature, and thereby the stomach is often made to empty itself in due time after each meal and so prevent fermentation from food stagnation. For this purpose also, expert abdominal massage by one who reaches deep, coaxing and pushing the stomach contents toward the pylorus often materially assists the stomach to empty itself. Emersonian exercises and certain Swedish movements seem to aid in emptying the stomach, while they certainly indirectly improve its tone.

Theoretically, physostigma increases gastro-intestinal peristalsis, and in some cases of atony it may be used to advantage. The extract may be given in quarter- or half-grain doses, three times daily, combined with extract of nux vomica and a little extract of belladona.

Antiseptics are remedies that may sometimes be used to advantage in conditions of deficient hydrochloric acid secretion, impaired motility and gastrectasia, but they are not so effectual actually as theoretically they make promise of being.

When, from indiscretion in diet, fatigue or constipation, a sudden attack of gastric fermentation occurs, no drug is better adapted to neutralize the poison and hurry it out of the system than is calomel, either in small doses frequently repeated, or in one good-sized dose, followed by a saline cathartic. Indeed, one-twentieth or one-fiftieth of a grain of calomel, given about four times daily, in a somewhat lasting condition of lactic acid fermentation, acts admirably as a gastro-intestinal antiseptic. The speediest way of ridding the stomach of an excess of lactic acid formed during an attack of so-called "acute biliousness" or "acute indigestion" is by lavage. The noxious elements are washed out, the intestine no longer receives irritating, improverly prepared chyme and the mucous membrane of the stomach is immediately soothed. The greatest relief is afforded by lavage in many cases of gastrectasia when the stomach is loaded with acrid, stagnant, poisonous material, some of which has, perhaps, been lying in it for a number of days. No other means as yet practiced is capable of giving the relief nor accomplishing the good that an occasional lavage does in these cases of food stagnation.

One or two grammes of chemically pure bicarbonate of soda, one hour before meals, promotes gastric secretion and motion and in some cases lactic acid is found in much very smaller quantities during and after its use. It has been found that soda, given later than one hour before meals, does not act as well as when it is given as above indicated, while if it is given at the beginning of, or during a meal, gastric digestion is retarded.

Drugs that are used as gastro-intestinal antiseptics are very numerous. A few seem to be effective in reducing the formation of lactic acid. Benzonaphthol, in doses ranging from two to ten grains, works well in some cases. It is best given in capsules soon after meals. Resorcin in the same doses may be given either in capsules or in glycerin and a little alcohol as solvents. Oil of eucalyptus is a good gastric antiseptic, and if not administered in capsules, it may be advantageously given incorporated in a powder with a little menthol, subgallate of bismuth and light carbonate of magnesia. With much flatulence this combination affords relief, and to it may be added re-ignited officinal charcoal. Hydrogen di-oxid is another antiseptic that has been quite largely used for its effects in the stomach. It is useful in arresting fermentation if given early enough to exert its action before fermentation has got well started. Unfortunately the drugs that are used as gastric antiseptics are necessarily given in such small doses that they are "a drop in the bucket" when mingled with the copious mass of semifluid, sour, decomposing stomach contents often present; more especially is this true in gastrectasia with food stagnation. One of the most effectual drugs in lactic acid fermentation is pure beechwood creosote, in doses ranging from one to five or more drops given in wine or mucilage after meals. In cases of im-

paired motility, with absence of free hydrochloric acid and lactic acid excess, I have seen the latter almost entirely disappear and the former re-appear under the use of this drug. Small doses seem to have as much effect as do large amounts of the drug.

The sulphite of sodium and permaganate of potassium are active antiseptics, but in my experience their administration has been attended by nausea, gastric distress or vague discomfort, so much so that they were necessarily discontinued.

There are some cases of dilatation of of the stomach due to cicatricial stenosis of the pylorus following gastric ulcer, in which hydrochloric acid is still secreted, but is not found free in the gastric contents when they are withdrawn, because of the overwhelming amount of lactic acid which arises from active fermentation of stagnating contents. In these cases the total acidity is not infrequently raised to 100 or over, and the administration of hydrochloric acid after meals gives rise to increased distress amounting at times to burning pain. While giving hydrochloric acid in such cases I have failed to find it free in the stomach-contents, and at the same time it has been quite noticeable that lactic acid fermentation seemed rather to be increased than lessened and the total acidity of already irritating contents was thus raised instead of lowered. By stopping the administration of hydrochloric acid and substituting a mixture of cerium oxalate, bismuth subcarbonate and light carbonate of magnesia, given between meals and at bedtime, not only was gastric comfort restored, but lactic acid was markedly diminished and free hydrochloric acid was found in the gastric contents.

Finally, one of the most important matters in the treatment of lactic acid excess is the correction of the diet, the more so as improper diet is the cause of lactic acid formation in many cases. Milk puddings, custards, pastry, ice cream, rich cakes, cheese, thick soups made with milk and cream, fancy entrèes made with cream and starches mixed, salads and salad dressings ought to be very much restricted or interdicted entirely. It is noticeable that milk and cream, when taken alone, do not give rise to nearly as much lactic acid formation as when they are mixed with starchy foods, as potatoes, cornstarch, tapioca, sago, etc. As a rule, however, it is best to withhold milk at the outset until lactic acid is no longer formed in any but small quantities. Meats, eggs, stale bread, zweiback, fish, oysters and other plain foods should constitute the diet until the system is free from the effects of lactic acid poisoning.

Lowered general health should be overcome by out-of-door life and appropriate exercise. Sunlight, proper sleeping-rooms, hydrotherapy, massage, electricity, indeed, all those things that strengthen the nervous system, improve the blood and increase muscular tone so that the function of the stomach may benefit thereby.

Influence of Exercise upon Gastric Digestion.

Drs. Surmont and Brunelle (*Medical Week*,) have shown by experiments upon dogs that exercise has no special influence upon the motility of the stomach, but when not excessive, it has a marked influence upon secretion. It is concluded from the experiments made that persons who have taken a test meal should rest after the food has been taken, until the stomach fluid has been withdrawn, and that rest is advisable after eating, for a patient suffering from hyperpepsia, while exercise should be advised in cases of hypopepsia.—*Mod. Med.*

Analgesia of the Ulnar Nerve in Tabes.

According to the *Neurologisches Centralblatt*, Dr. E. Blernacki has discovered that the ulner nerve is analgesic in a large proportion of tabetic patients. He found it thus in fourteen out of twenty cases, and in half the cases found analgesia in the regions supplied by this nerve.—*Mod. Med.*

Dr. Tyrell, in a paper read before the Ontario Medical Association, relates his own personal experience with *hay fever*. He noticed, after careful observation, that lithæmia is a strong predisposing cause. By taking salicylate of soda at night he was invariably able to abort a threatened sttack. By further experimentation he found that 15 grains taken before breakfast, was the best mode of taking the drug, as it then had the combined action of a diuretic, diaphoretic and purgative. This line of preventive treatment proved equally efficacious in others.

CORRESPONDENCE.

TO THF MEMBERS OF THE PROFESSION OF MEDICINE IN THE UNITED STATES.

The following from the *Evening Star*, of Washington, D. C., of Saturday, July 22, 1895, is commended to the careful, thoughtful consideration of every member of the profession:

"THE HAHNEMANN MEMORIAL—A GRANITE ELLIPTICAL CURTAIN BEHIND THE BRONZE STATUE—TRIBUTE OF THE AMERICAN HOMEOPATHIC INSTITUTE TO THE PHILOSOPHER AND PHILANTHROPIST.

"At the recent meeting of the American Institute of Homeopathy at Newport, R. I., the committee on the memorial to Hahnemann, consisting of one physician from each state and territory, with the indefatigable worker and father of the project, Dr. J. H. McClelland, of Pittsburg, as chairman, made its report. The committee secured the assistance of several artists, notably J. Q. A. Ward, and an advisory committee, composed of five well-known members of the American Sculptors and Architects' League—three sculptors and two architects. They called for competitive designs from every source and country, offering prizes for the best three. The advisory committee, Messrs. Daniel C. French, George E. Bissell, Thos. Hastings, Olin L. Warner and Russell Sturgis, announced that, in their judgment, the first prize of $500 should go to the design of Charles H. Niehaus, of New York, the second prize of $300 to Joseph Loester, of New York, and third, of $200, to Herbert Adams, of Brooklyn. Marsh, Israels & Houder are the architects associated with Mr. Niehaus in his design, which has been accepted on the expert report by the monument committee. The description of the monument prepared by the committee says:

"The monument is a true ellipse in plan, its fundamental motive being the Greek exhedra form. The main lines of the central portion present a flat curtain wall with decorated tympanum above the impost. This, together with the projecting lines of the ampures, forms architectural vertical divisions of this elevation, which is thus resolved architecturally into component parts, resulting in a well proportioned and equally balanced composition. Rising from the platform in front of the central portion is a simple pedestal supporting the statue, upon the face of which appears the inscription '*similia similibus curantur.*' Other inscriptions and decorations are of a character significant of and glorifying the work methods and results achieved by the great reformer. The upper portion of the niche behind the statue it is intended to decorate in glazed mosaic, in colors, of a design composed of the foliage and flower of the cinchona plant. On either side of the arch are decorative emblems in bas relief—a bowl and serpent, the symbols of wisdom, and a lamp and book, typical of knowledge and instruction. The former in association with a palm branch, the latter with a wreath of laurel. The keystone of the arch bears a lion's head, the symbol of strength in leadership. Upon the rear the date of erection appears across the center in Roman numerals and the dates of Hahnemann's birth and death, 'Meissen, April 10, 1755,' 'Paris, July 2, 1843,' encircled with laurel wreaths, are inscribed to the right and left.

"In the center, filling the tympanum of the arch, appear two figures in bas-relief, emblematic of the science and art of medicine. Underneath this is a fountain in the form of a fluted basin fed by a stream of running water issuing from a carved dolphin; thus symbolizing the temperance Hahnemann practiced and taught. The style of the design is essentially Greek in spirit and in its form. The statue itself is in bronze. The features will be faithfully copied from the bust by David.

"The commemorative tablets are placed in two panels, on either side of the niche, upon the curved walls, representing in bas-reliefs of standard bronze, periods of Hahnemann's life. The monument is to

be built of the finest grained white granite, except the statue and entablatures, which are to be of antique bronze. The ground dimensions are 43 by 30 feet, and the height 22 feet.

"The cost of the memorial will be $50,000 of which $29,000 has been subscribed. No particular site in Washington has been selected as yet. Local homeopathic physicians state that there is one which has the preference, but it is not known yet whether it can be had."

After this, shall the Committee on the Rush Monument appeal to you again in vain? We, too, had estimated the cost of this monument at $50,000. After ten years, we have collected less than one-tenth this sum. This little band of homeopaths with a like estimate of $50,000, in three years have subscribed *more than half* that amount.

Shall you be willing to place in the same city, and that the capital of this great nation, beside the splendid memorial here described, of a foreign theorist, any less appropriate and artistic testimonial of the great patriot physician of the Revolution? Your committee are not forcing upon you any man of local or sectional reputation. His eulogists are your great men among the living and the dead, in this country and abroad. For the sake of the good name of the true Medicine, do not delay this work longer. Let every State, Territorial and county medical society in the United States hold special meetings to act upon it. Let every delegate and member at the recent meeting at Baltimore bear in mind that he was specially constituted at that meeting a member of the Rush Monument Committee, and the duty imposed upon him of collecting funds. Your committee, therefore, earnestly appeal to the professional pride of every reputable doctor of medicine in this country to forward his contribution at once to Dr. George H. Rohé, Secretary at Catonsville, Md.

ALBERT L. GIHON, M. D.,
Chairman Rush Monument Committee.

Pseudo-Tuberculosis.

Dr. Hugo Preisz (*Annales de Institut Pasteur*), chief of the State Bacteriological Institute at Buda Pesth, reported, four years ago, a case of pseudo-tuberculosis observed in a sheep. The microorganism found, differed from the bacillus tuberculosis of Koch. Numerous other persons have observed cases of pseudo-tuberculosis in the rabbit, the guinea-pig, and the mouse. From recent studies of this subject and comparison of the researches of various authors, Dr. Preisz arrives at the conclusion that the bacillus which he has discovered and which resembles, morphologically, Löffler's diphtheria bacillus, is a new pseudo-tubercular bacillus. The case described is the first one in which this disease has been observed in the sheep, and seems to be peculiar to this animal.—*Mod. Med.*

Microbes in Ice.

At this season of the year this question becomes one of importance. We quote as follows from the *Sanitarian*:—

"M. Richie, at the request of the French Government, has recently made a study of the microbes to be found in ice. It was found that ice which to the eye is perfectly transparent, and apparently free from any sort of impurity, may contain more than seven times the amount of organic matter which is allowable in water for drinking purposes. The specimen of ice was found to contain 175,000 colonies of germs for each cubic centimeter (¼ drachm). This specimen contained more than forty times the amount of organic matter allowable. This subject is one which ought to receive more attention from sanitary officials than it does at the present time."—*Mod. Med.*

Immunity against Diphtheria.

Ehrlich and Behring have determined that one fourth of a curative dose of antitoxic serum is sufficient to secure immunity. Among ten thousand persons thus treated, only ten suffered from the disease, although it was prevailing extensively. If the injection is made toward the end of the incubation period, it may not prevent the disease, but the attack will be greatly modified. The larger the dose, the longer the protection. The antitoxine is gradually excreted by the kidneys. When it has been entirely removed from the system, the immunity ceases. The injection of several small doses at intervals, is more effective in establishing immunity than a single large dose.—*Mod. Med.*

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SATURDAY, AUGUST 24, 1895.

EDITORIAL.

ACCIDENTAL DEATH DURING ANESTHESIA.

At a recent meeting of the Allegheny County Medical Society, one of the physicians present reported the accidental occurrence of death during a chloroform narcosis. In the ensuing discussion several similar accidental deaths were reported as occurring during the administration of chloroform, or that yet more dangerous anesthetic the A. C. E. mixture.

If statistics are of any value whatsoever in determining the positive and relative merits of anesthetics, it has been proven conclusively that of all the agents for the production and maintenance of surgical anesthesia, ether is the safest—certainly so far as immediate effects are concerned.

To be sure ether has some features objectionable as compared with other anesthetics, notably chloroform; but, on the other hand, it does not kill suddenly and without warning. Nor is it liable, when judiciously handled, to produce results more remotely lethel, as is so often urged by surgeons who prefer to take increased risk in order to obtain the conveniences presented by chloroform.

Chloroform considered apart from other anesthetics, may be called safe, so insignificant is its mortality rate in proportion to the frequency of its administration. But when compared with that of ether, the mortality of chloroform assumes such formidable proportions as to outweigh the sum of its conveniences and to render its use justifiable only in cases where the administration of ether is positively interdicted.

If this be true, sudden death during chloroform narcosis must be held an incident rather than an accident, for no surgeon has the right to give matters of convenience any weight in the balance as against human life.

It will be noted that surgeons who are accustomed to its use insist that chloroform is perfectly safe *when properly administered*. It will also be noted that the deaths incidental to chloroform anesthesia occur

in the practice of surgeons who insist upon its entire safeness—the safest agent must be used—and who undoubtedly administered the anesthetic properly—they could allow of no negligence.

Paradoxically, however, when thus properly administered, and consequently entirely safe, the proportion of deaths "by the dispensation of Providence" during chloroform narcosis is enormous as compared with similar "visitations" during ether narcosis. So that if the drugs are of equal safeness but the liability of a visitation of Providence must be taken into the calcution, ether would still proffer the lesser chances for translation.

Unfortunately, the ideal anesthetic, the one which will completely suspend sensation and motion without impairing consciousness or imperilling life; one which will produce such condition instantaneously and will have no bad after effects; in short, one which is entirely satisfactory and perfectly safe—the ideal anesthetic is not as yet discovered. Nor in the course of nature is it likely to become evident before that time when there shall be no more pain nor sorrow. Then it will not be needed.

Meanwhile the consideration of greatest importance is the proper selection and skillful application of the best offered from among the agents we have, which, although imperfect, are the greatest blessings vouchsafed suffering humanity.

The inconvenienced, annoyanced and danger arising from the haphazard method of obtaining an anesthetizer from among resident physicians in hospital service, and the handicaping of the operator, by having to give attention to the anesthetizer through fear lest the patient be asphyxiated, led one surgeon to sketch for his resident's benefit, some facts learned at the bed side, and proved of value by a very considerable experience, extending over years, in administering anesthetics. The directions were given dogmatically and without reference to authority other than the surgeon's own experience as an anesthetizer. With but little change these suggestions will be reproduced at another time in hopes that they may prove of some benefit to the practitioner, who at any time may be called upon to administer an anesthetic.

Microbes and Money.

That money is the root of all evil is one of the stock platitudes of the pulpit, but probably the preachers themselves do not fully realize the vileness of the gold and the filthiness of the lucre they are so fond of denouncing. That thriving colonies of microbic "small deer" are found on bank notes is one of the many uncomfortable revelations we owe to bacteriology; and it is equally well known that the germs of contagious diseases circulate with the metallic currency. So impressed with the danger arising from this source is Professor Demosthenes, of Cucharest, that he urges medical men to use strict antiseptic precautions in receiving their fees. He describes a practitioner who attends a case of scarlet fever or other infectious illness, receiving money which has been under the patient's pillow, or, at any rate, in contact with him. Then he goes straight to the bedside of another sufferer, and feels his pulse, and touches various parts of his person, giving the microbes received with the fee from the first patient an excellent chance of finding fresh pastures. In course of time the doctor returns to the bosom of his family laden, we are led to infer, with precious metals and bank notes, and distributes the day's catch of microbes among his children in returnings their caresses.

This is a terrible picture, but it suggests to our minds certain reflections. In the first place it does not appear superfluous to inquire whether it is not the custom of our brethren in Roumania to go through some process of purification, at least to the extent of washing their hands, before they pass from one patient to another. Again, are all Dr. Demosthenes's brother practioners paid in ready money? We imagine that many doctors of this country would cheerfully take the risk of contagion if they could get the cash. Professor Demosthenes concludes his discourse with the warning: "Be on your guard against your patient's money."

ABSTRACTS.

TREATMENT OF ASIATIC CHOLERA.*†

ELMER LEE, A.M., M.D., PH.B., CHICAGO.

Spasmodic cholera—called also malignant, epidemic, Asiatic, Indian, blue, and pestilential cholera—is generally epidemic, though not contagious. The first symptoms are generally experienced during the night, sometimes beginning with a light general uneasiness and moderate diarrhœa; at other times the symptoms come on violently and follow each other rapidly. In fatal cases death usually occurs at some period between six and twenty-four hours; in a few fatal cases the patient lingers two or three days. The ordinary course of symptoms are more or less diarrhœa; the discharges at first feculent, but soon presenting the appearance of rice-water or gruel; there are flying pains, or sense of coldness in the abdomen, as if purgative medicine were about to operate; the countenance is pale; there is nausea, vomiting, prostration of muscular power, and nervous agitation; cramps in the legs, arms, loins and abdominal muscles, more or less severe; small, weak pulse, intense thirst, and urgent desire for cold water; in most cases cold, clammy skin; all these symptoms may appear successively or almost simultaneously. In some cases the premonitary symptoms exist for eight or ten days; and sometimes the patient is prostrated at once. When the disease comes on suddenly the cramps usually begin in the fingers and toes, rapidly extending to the trunk; the eyes are sunken and surrounded by a dark circle; there is vomiting and purging of white matters mixed with flocculi; the features are sharp and contracted; the expression of the countenance wild and confused. The face, extremities, and often the whole surface of the body manifest a varying intensity of a leaden, bluish or purplish hue; the extremities shrunken, the nails blue, the pulse thready or wholly imperceptible at the wrist, arm, axilla, temple or neck; there is great restlessness, incessant jactitation, severe pain in the epigastrium. loud moaning or groaning, difficult and oppressed breathing; difficult inspiration' with short and convulsive expiration; voice hoarse, whispering, or nearly suppressed and plaintive; the tongue is white, cold and flabby, and the external temperature often sinks below 80 degrees; convulsions recur at short intervals, or a constant tremor exists. The secretions of bile, saliva, tears and urine are entirely suppressed, and a cadaverous odor exhales from the body. The patient retains his faculties to the last.

Some of the symptoms may be disproportionately severe, or may be entirely absent. Those usually regarded as pathognomonic are: watery dejections, blue appearance of the countenance or surface, thirst, coldness of the tongue, and pulselessness at the wrist.

The forgoing description of the symptoms of cholera is indicative of the nature of the disease calling for human aid. The time in which to treat the patient sick with cholera is exceedingly limited. What is to be done must be executed with rapidity. There is not a moment to lose between the time whenthe patient is first seen and the accomlishment of severely practical efforts. Many wise theories may be promulgated, but there are few practical measures that will avail against Asiatic cholera. The experiences during the cholera epidemic of 1892 in Euroge, both in Russia and Germany, produced in me a profound conviction that, for the most part, remedial agencies that have been used are of questionable utility. Nearly every prominent remedy proposed and tried has been found to end in greater or less disappointment. Years ago, great reliance was placed upon the far-framed "mild chlorid of mercury."

* Read in the Section on Practice of Medicine, American Medical Association, 1895.

† The Journal of the American Medical Association.

Twenty and ten years ago the remedy was given in large doses. Three years ago during the latest epidemic, small doses prevailed. Next to this, the synthetic drug salol, the product of the laboratory of the Imperial Institute of Experimental Medicine in St. Petersburg, was the most widely used and the most favorably received. Professor Nenski, the originator of salol, personally informed me that the value of the drug could not be seriously recommended as of much importance, but that it perhaps answered the requirements as far as any drug could answer, in the hands of his colleagues. Widely circulated and various reports, enthusiastically commending and moderately commending this remedy were received by the Professor in St. Petersburg, but he himself was silent as to its efficacy. The far-famed and seemingly unmatched drug, quinin, has been used, and has been held as a dazzling gem before the eyes of the profession by some of our best men, who believe that cholera is analogous to malarial disorders, and consequently the medicine which occupies the position of keystone in the arch, for malarial treatment, is a remedy suitable to contend with the rapid and desperate symptoms of Asiatic cholera. Quinin has a stout advocate in our own country, in the person of a well-known professor in one of the Ohio medical colleges. It was not used, to my knowledge, in the treatment of cholera during the last epidemic in Europe.

A remedy was brought to Hamburg during the latter part of the epidemic of 1892 by the representative of an English syndicate, who posed as a chemist, not a physician. His remedy was a preparation of ioding to be administered through the mouth. He call the medicine a periodate, and made some experiment upon patients in one of the cholera hospitals in Hamburg. His remedy, however, was not favorably entertained by the medical authorities in charge of the cholera patients, and whatever claims were reported came through the interest of a friendly correspondent of one of the Hamburg weekly secular papers. To show how misleading some of our supposedly authentic information often is, it is only necessary for me to refer to the report given in the "Year Book of Medical Progress," published in Philadelphia. Of all the progress made, of all the combined investigations during the entire epidemic of cholera throughout Europe in 1892, and there was an immense amount of original investigation and great effort made to discover a remedy, the curious spectacle in the Year Book, which alone refers to the remedies brought by an agent of syndicate from London to Hamburg, at the closing of the epidemic of cholera, shows that there are some things in our profoundest medical publications that are to be taken *cum grano salis*. Uretin was extensively used hypodermically for its alleged influence upon the secretions of the kidneys, upon the ground that the kidneys were to be aided by irritating them to greater functional activity to eliminate morbid elements through the urine. The result of many investigations recorded in Russian practice show that this drug is not to be commended. Digitalis was used, supposedly to benefit a weak heart. This remedy, if at all useful, could be little more than palliative. The use of acidulated water was extensively employed in different hospitals in Europe as a drink, but not prescribed as a remedy. The water was acidulated with HCl and H_2SO_4. Subcutaneous injections of salt water were made. The proportion of salt was one-half of 1 per cent., and the amount of salt water injected subcutaneously was sometimes as much as a quart at a single injection. In one instance, during an illness of several days as much as thirteen quarts was subcutaneously injected into the cellular tissue, principally that of the abdominal wall. This process of subcutaneous injection was known as hypodermaclysis. The purpose of the hypodermaclysis was to maintain the volume of the blood. The diminished volume of the blood is directly the result of the waste of its liquid portion or serum into the alimentary canal. In this serous discharge, flakes of intestinal mucous gave the name of "rice-water discharges" to the bowel evacuations, the particles having a resemblance to grains of rice. The general inflammatory state of the intestinal mucous membrane, throughout its entirety, drains the blood of its liquid portion rapidly, and collapse due to stagnation of circulation quickly ensues.

The remedies mentioned are only a portion of those tried, but there is no living advocate who to-day can point with unerring certainty to one single organic or in-

organic substance, howsoever administered, that can be safely depended upon in the treatment of Asiatic cholera. Both botany and mineralogy have been searched in vain for a cure for this disease.

The cause of this disease is perhaps accurately stated to be due to invasion of the blood and, secondarily, of all the tissues of the living organism, by toxins or ptomaines, which originate in the upper portion of the small intestine at the early stages of cholera. These products of organic activity, whether of animal or vegetable organisms it is here unnecessary to debate; but these noxious products enter the circulation through the villi of the intestine and rapidly and desperately poison the blood. It is clearly proved that the disease is the result of general blood poisoning from an intestinal origin. Whatever the chemic nature of the poison may ultimately be found to be, may be safely left to the bacteriologic laboratory. The practical and intensely important part that remains for physicians seeking to cure patients in times of this disease is to realize how much, as well as how little, it is within human power to do. The human organism is prostrated by a fierce and deadly poison. This poison is in the blood and in the cells of the tissues, and its work of destruction is quickly and effectually accomplished. Reflectively, to say nothing of experimental research, it would seem to me that the rational and only course that could be advocated with scientific assurance of relief is to, as far as possible, literally cause to be removed these products which are death-dealing to the body in which they happen to be found. Now, in this same reflective mood, think for a moment and try with me to determine whether it is possible in such conditions as produce the symptoms of Asiatic cholera, it is safer to introduce other poisonous products to neutralize the noxious elements in the blood and cells, or whether it is a better process to, without the introduction of additional foreign substances, remove what we already find in the blood. To make this proposition clearer, it could be stated in another way, namely, the body is already bearing a crushing burden; shall we add other foreign substances as an additional burden to the load already carried? The principle seems to me to be at fault. The principle is the principle of allopathy, but in the light of facts is it a safe principle to follow? It is reasonably scientific to produce in the laboratory, definite results in vessels of glass by the use of fixed reagents; in the organic laboratory of the living body, no such definite results can be demonstrated. The vital principle is an entity which enters into the formula and may be represented by the unknown quantity x in algebraic equations. Great and laudable efforts have been made to prevent as well as to cure this disease by inoculation.

Ferran, of Valencia, Spain, thrilled the world ten years ago with his proposition of a universal cure for this disease. His glory was then at its zenith. His fame has long since faded. So obnoxious became his preposition to the government of Spain that laws were adopted to suppress Ferran's cholera inoculations.

A worthy colleague and laborious investigator, Professor Haffkin, of Pasteur Laboratory fame proposed a modified inoculation for the prevention and cure of cholera in 1892. A reporter of the New York *Herald* was inoculated at the Pasteur Institute, and with credentials sent to expose himself to Asiatic cholera at Hamburg in September, 1892. The same reporter had been similarly inoculated by Ferran in 1886 and had the courage to make further exploits in behalf of his newspaper, at Hamburg. A very widespread opinion prevails in America that the exploit of the New York *Herald* reporter during the ten days' stay as a nurse in the Hamburg hospital, constitutes a proof of the validity of Haffkin's claim, but the scientific world of Europe knows differently. *En passant*, it many be interesting to state at this place that further experiments have been made by Professor Haffkin in India with the cholera inoculations and, unfortunately for the proposition, reports have recently come to me from reliable medical sources, that a greater percentage are attacked with cholera who have been previously inoculated than of those who have not been inoculated. This subject of prevention, however, is to be discussed by me in a paper to be read before the Section on State Medicine.

The result of prolonged reflection, covering many years, and the observations resulting from personal experience in the cholera epidemic in Europe of 1892, is

the conviction that there is provided in the laboratory of the universe a remedy which surpasses the results of human ingenuity as much as does the sun surpass in brilliancy the light of the artificial lamp. The all-pervading and all-wide remedy, the greatest product of omniscient nature's laboratory, which alone can cope with this pestilential disease of the human race, is nothing more and nothing less than the unmatched, unmatchable H^2O. Pure water is absolutely the only trustworthy cure for cholera, and if it came at a great price it would probably be more greatly valued. The human organism is so constituted that if it is assisted by H^2O, every morbid element may be eliminated out of its domain. The acutely poisoned body quickly recovers its equilibrium and its harmony of action as soon as the processes of elimination can remove the invading poison. In the construction of the mucous lining of all the accessible cavities and channels it is prepared by an undiscernible law to successfully resist the entrance of every form of organism. The products of organic action alone are able to pass into the blood. If sufficient quantities of pure water, of a suitable temperature, are introduced into the body through the natural channels, it is actually possible to wash morbid products as well as organic forms of life, out of the human body. The mouth gives entrance to the causative germs in Asiatic cholera. That is quite conclusively established. The locality of the development and formation of tho toxin in the earlier stages is determined to be in the upper end of the small intestine; and from experience, as well as from the powers of reflective analogy, there is no doubt that the system can be saved from death if the morbid entity, the germ, is literally deluged away from the ailmentary canal by the copious use of a remedy that can not be of the slightest danger to the victim. The amount of water to be used varies in different cases. It is impossible to use too much; it is possible to use too little. From the earliest moment that the patient is seen, the propositions should be, first, wash the whole alimentary canal with pure water; wash the lower portion by introducing irrigations of warm soapsuds or merely warm water into the colon sufficiently frequently and sufficient in quantity to cleanse that portion of the bowel effectually. The frequency of washing that portion of the bowel which is accessible from the rectum should be one, or two, or three, or four times a day, according to circumstances. At the same time from one to ten quarts of warm pure water mildly medicated with peroxide of hydrogen or hydrozone should be administered at regular intervals, during the day, as the prescribed remedy by the mouth. If the patient vomits, very well. Immediately re-introduce the quantity of water that was vomited. No harm can be done in any case, and if it is possible to save life it is possible to save it through this method. It is the quickest and the surest method of exciting the activity of the kidneys, and is the safest. It is the rational and effective measure for maintaining the volume of the blood. It is the scientific process by which to establish cutaneous circulation in the capillaries.

The use of simple and useful hygienic measures are the same as in other prostrating diseases. Patients should be fed with regularity at not too frequent intervals, giving the proper time, between administrations of simple food, for its digestion. The use of appliances for maintaining the heat of the body are not to be neglected.

The precise details of the method of treatment indicated at this time will be forthcoming in a subsequent paper.

Foreign Bodies in the Bronchi.

S. Kobler (*British Medical Journal*) investigated the anatomical position of the bronchi to explain the undoubted greater frequency of foreign bodies in the right than in the left bronchus. In conjunction with V. Hovorka he made experiments on bodies hardened by chronic acid and found that the right bronchus, contrary to the old teaching, always run more in a line with the trachea than the left, thus confirming the previous work of Aslay and Kocher. Another factor, which decides which bronchus the foreign body enters, he considers to be the position of the individual at the moment when the aspiration takes place.

Dr. Helling says that a red nose is due to contraction of the arterioles and dilation of the veinlets. He claims to have cured a number of cases by tho application of a continuous current of moderate intensity for five to ten minutes daily.

NUCLEINS.*

WILLIAM H. PORTER, M. D., NEW YORK.

Ever since the application of bacteriology to scientific medicine, the biologists, the physiological chemists, and even the manufacturing chemists have tried to produce something out of the animal kingdom by which disease can be prevented and cured. In the list of substances produced we find immunizing serums, animal extracts, toxins, antitoxins, nucleins, etc. The antitoxin, so called, of diphtheria, and the nucleins are among the later productions, and are now begging for a position among reliable therapeutic agents.

All of the host that have gone before are far from being established upon a satisfactory basis, either chemical, physiological, or clinical. The best that can be said of any of them is that, in experimental work, a few instances of more or less complete immunization in the lower animals have been noted. As yet, however, nothing definite has been accomplished in their application to man, and some, like tuberculin, have been complete and deadly failures. Among the animal extracts an exception may be made in favor of the extract of the thyroid gland, which appears to have a decided influence in modifying the clinical symptoms of myxedema. But even here it is not curative; it simply stays the progress of the disease, and permits of a partial recovery. So long as the patient continues to take the extract the symptoms are held in abeyance; withold the extract, and all the symptoms at once return. How long these favorable results can be maintained is still awaiting final settlement. It should be remembered, however, in connection with these favorable results, that the exhibition of the thyroid extract often produces grave constitutional disturbances and cannot always be tolerated with safety.

Of the toxins and antitoxins none of them has yet reached an indisputable position among the list of therapeutic agents. For a time the brilliant results claimed for the so-called anti-toxin of diphtheria—which, however, is an absolutely unknown quantity as yet—made it appear that a grand discovery had been made, and one which would fully demonstrate the power of serum therapy. But as one closely scrutinizes both sides of this important question, and gets honestly at all the factors that enter into this involved problem, the evidence in favor of the value of antitoxin grows less and less certain, and one cannot but fear that it will ultimately prove a failure, as many of its predecessors have done. What, then, is the true position of the nucleins?

First of all it may be well to try and ascertain what nuclein is, and from whence it comes. Most of the substances already mentioned have been absolutely unknown quantities. Nuclein, however, appears to be a little more tangible substance, and one which has in a measure been formulated. It is described as a tetra-basic acid composed of carbon, hydrogen, nitrogen, phosphorus and oxygen, with the formula $C^{29}H^{49}N^{9}P^{3}O^{22}$.

The antecedent chemical substance, from which nuclein appears to be derived, is a complex molecule, apparently the product of a synthetic process in plant life by which a few atoms of phosphorus and iron are made to enter into combination with the proteid molecule. This more complex molecule has received the name nucleo-albumin. From this anabolic origin in the vegetable kingdom this compound gains access, as do the proteids, to the animal tissues, and here it appears to be deposited by preference of nature in the protoplasm or nuclei of the cells. It is also found in the secretions, and is then spoken of as destroyed or altered protoplasm. In some instances this may be true, but in other instances, as when it appears in milk and in the yolk of eggs, it can hardly be spoken of justly as destroyed protoplasm, for this is the only source of phosphorus and iron during the period of life, when milk is the only form

*Professor of Clinical Medicine and Pathology at the New York Post-Graduate Medical School and Hospital, etc.

*Read before the Litchfield County Medical Society, 1895.

of food supplied to the animal economy. It may be altered, it may exist in another isomeric form, but there is a wide difference between destroyed and isomerically altered protoplasm.

Nucleo-albumin, therefore, must be looked upon as a common constituent of all cell-elements. It is a substance which when isolated behaves like a strong acid; it is almost insoluble in water, but dissolves readily in the presence of a little alkali. This nucleo-albumin in many respects resembles the globulins, but differs from them in that it contains phosphorus. It is quite probable that the original nucleo-albumin is a vegetable gobulin, to which phosphorus and iron atoms have been added, as a little iron is always found in this substance.

Viewed in this light, nucleo-albumin is a synthetic product of vegetable chemistry where anabolic construction is continually taking place. When this nucleo-albumin is oxidized, or split up, it yields as one of its katabolic oxidation products a substance which is far more simple in its atomic structure than the nucleo-albumin from which it came. To this more simple molecule, $C^{29}H^{49}N^{9}P^{3}O^{22}$, the name "nucleic" has been given. Nuclein was first made from pus, then from spermatozoa, blood corpuscles, hens' eggs, the yeast plant, from liver cells, from cows' milk, etc. In fact, wherever nuclei are present a substance can be obtained from their contained nucleo-albumin, which, in a measure, is rich in phosphorus, soluble in weak alkalies, insoluble in acids and in artificial gastric juice, and which has a sticky character somewhat like mucin, but differing from the latter in containing phosphorus.

From this method of development it appears quite clear that the opinion held by many observers that nuclein is not a normal constituent of the animal economy is the correct one. Nuclein, on the other hand, is a katabolic product obtained from the oxidation or splitting up of the complex molecule known as nucleo-albumin, in the same manner that urea and uric acid are katabolic products resulting from the oxidation or splitting up of the proteid molecule.

Nuclein has never been found in the excretions as one of the katabolic bodies of nitrogenous composition for the normal elimination of nitrogen and phosphorus from the body. In fact, there is no evidence to show that such a compound is ever formed in the system, but simply that it can be made from the nucleo-albumin, which is a common constituent of all cell-protoplasm. Nuclein, therefore, must be classed as a purely artificial product of the analytical chemist's laboratory.

That the contained phosphorous of the nucleo-albumin is the source of the phosphorus compound, lecithin, is probably true. The phosphorus of these substances is the source of the phosphoric acid, owing to which the phosphates eliminated from the system are always in excess of the phosphates taken into the animal economy in the food-stuffs. This much has been eslished, but just where these oxidation changes take place is yet to be determined. The remaining nitrogen of the nucleo-albumin, after yielding up its phosphorus, appears to leave the body in the form of the higher oxidation products, such as urea, uric acid, etc.

As there is no tangible evidence at hand that animal life or animal chemistry can take simple molecules and build them up into more complex molecules, it cannot be argued logically that nuclein, if administered to the animal economy, can be converted into a nucleoalbumin, thus enhancing the nutritive chemical activity and life of the protoplasmic elements.

We are left, then, for a solution of the therapeutic valne of nuclein, if it has any, to one of two methods of explanation; methods by which all chemical compounds must be examined if they have not the common properties of the food-stuffs.

First, it may simply be a foreign body which acts by its irritating and poisonous properties, thus stimulating normal and inactive protoplasm to increased activity, without in itself undergoing any chemical change, as occurs with all the inorganic compounds. Or, second, it must be a substance which, from its organic nature, is capable of being rapidly oxidized, thus yielding heat and exciting active chemical mutations of a greater intensity and higher kinetic energy than occurs when the normal food-stuffs are introduced.

If it can be shown that nuclein stimulates the animal economy, either in normal or abnormal states, by either of the above methods, into a more rapid chemico-physiological activity, so that the system can more rapidly utilize the normal food-stuffs and develop a higher nu-

tritive state, and thus place the system in a higher state of resistance against toxic agents of all kinds, then nuclein can be classed as a valuable therapeutic agent. It must also be shown to accomplish this more successfuly than the well-tried and known alkaloids and glucosides before it can be set in advance of these tried agents in our therapeutic list. It must also be shown that, when nuclein is used, there is a rapid change in the excreta, so that abnormal katabolic products are replaced by those of a normal composition, both as regards quantity and quality.

All this must be accomplished before nuclein can be considered even as a valuable and reliable therapeutic agent, to say nothing of its displacing the old and well-tried remedies. When we look for this kind of evidence it is not to be found. All that can be discovered is the bold claim that the nuclein enters into the cell and gives to it, as it were, new life and new power to destroy microbic and toxic agents.[1]

It matters not what the therapeutic agent is; in every instance it must be demonstrated conclusively when applied practically at the bedside:

First, that it enhances the power of the enfeebled system to utilize the normal food-stuffs to greater advantage than otherwise would occur;

Second, that it increases the chemico-nutritive activity of the system, and thus increases the power of the animal economy to resist more effectually the intrusion of all abnormal conditions;

Third, there must be a marked change in the amount and number of the abnormal katabolic bodies eliminated in the excreta, and a marked tendency to change from the abnormal to the normal excretory products which indicate a normal state of the system;

Fourth, there must be an absolute decrease in mortality.

These are the conditions that must be met wholly or in part before any remedial agent can be considered as a thoroughly reliable therapeutic remedy. Working with this practical standard constantly before him, the clinician finds to his sorrow that many things which appear to work most satisfactorily in the experimental laboratory are total failures when applied to sick and suffering humanity. Thus far nuclein appears to be another compound to be added to the long list of total failures.

We would not in any way wish to discredit experimental work; but greater care should be exercised in making deductions from results obtained experimentally upon the lower animals, and in their application to the human economy in its various pathological states. Disaster and total failure have so repeatedly followed the adoption of random conclusions that now the clinician is naturally in constant doubt regarding any and all new discoveries.

When the biologist, the physiologial chemist, and the clinician have reached that harmonious stage which will make it possible to bring to their observations more uniformly into relation with one another, then we shall see the day when more successes and fewer failures will be recorded in medicine—(*Amer. Med. Sur. Bul.*)

1 Since writing the above the author has learned that the supposed germicidal power of nuclein has been ascribed to the use of impure nuclein, preparations in which the alkali used for their separation was not completely removed, the pure preparation being without such action. The natural inference herefrom would be that the contained alkali, and not the nuclein, is responsible for any germicidal action following its use.

Treatment of Cholelithiasis.

Blum (*British Medical Journal*) draws attention to the value of large olive oil injections in the treatment of biliary colic. These rectal injections can be substituted for the large doses of olive oil given by the mouth to which patients often object and which may disturb the functions of the stomach. In addition to the probable cholagogue action of these injections, olive-oil has a slight laxative action. The author follows Fleiner's directions in giving these large enemata; 400 to 500 c.c. of pure warm oil are introduced, at first daily and subsequently at longer intervals. The author gives details of five cases treated with benefit in this way.

Men and Women.

Twice as many women as men are afflicted with neuralgia.

Men are more liable to insanity than women, but after becoming insane die sooner.

Phthisis and pneumonia are more frequent and fatal among men than among women, while cancer and apoplexy kill more women than men.—*Med. Age.*

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

Stomach Washing in Acute Alcoholism.

According to the *Courier of Medicine*, Dr. Heine Marks, of the St. Louis City Hospital, suggests the following sensible method of dealing with acute alcoholism:—

"In cases of acute alcoholism, where a quick restoration to a normal condition is necessary or desirable, I have devised a plan which has never failed to prove efficacious. This is simply washing out the stomach. The apparatus for this purpose consists of a glass funnel inserted in the end of a rubber tube leading into the stomach. Through this I pour plentiful quantities of salt water, until vomiting ensues, and the stomach is thoroughly washed out. The patient is then placed in a hot bath and afterward immersed in cold water. In fifteen minutes he is comparatively sober and the next morning perfectly so, and steady too. By this devise I have been able to dispense with salts, bromides, chloral and other drugs. This treatment arrests gastritis, and, in experienced hands, never fails of accomplishing the desired result, though in inexperienced hands it might be attended with great danger."—*Mod. Med.*

A Case of Functional Deaf-Mutism.

By W. B. Ransom, M.D.—This is an interesting case, and difficult of explanation. The patient was a miner, aged 19, in fair physical and mental condition. Three weeks before being seen by Dr. Ransom he had gone to bed in his usual health, but woke up in the morning unable to hear or to utter a sound. The deafness was so complete that any loud, sudden noise made near him, such as the firing of a cannon, was not heard. In addition, speech had entirely gone; he could neither talk, whisper, nor utter inarticulate noise, and he communicated with his friends in writing. His other special senses appeared normal. He had no paresis, fits, sickness, vertigo, nor tinnitus.

At the end of the week, when seen a second time, his symptoms remained unchanged, and he had, in addition, anesthesia of the palate and loss of the palate reflex.

The diagnosis was "functional" or "hysterical" deaf-mutism, and as a further test, the faradic current was sent through the larynx by means of an intra laryngeal electrode and one on the front of the neck. The result was a "kick and a yell," and on being told he could now speak, he at once answered, "Yes, I can;" and he heard and was able to reply to questions uttered in a whisper.

Dr. Ransom, in discussing the nature of the seizure, specially refers to the demeanour of his patient being quite the reverse of that of a malingerer.—(*British Medical Journal.*)

Hysterical (so-called) and Functional Deafness.

By Sir William Dally.—This paper contains details of two cases in some points similar to the foregoing, and the points of similarity in and the differences between them are gone into in detail.

Dr. Dally's first case was a young lady who was found by her friends one morning to be absolutely deaf to all sound. Communications had to be written, to which she made replies as usual, the tone of her voice being unaltered. Six months afterwards she recovered her hearing as suddenly as she had lost it.

His second case is given as an example of true functional deafness. A child, who had become intensely deaf without any middle ear disease, recovered completely after the evacuation of a large number of lumbrici.

The function of hearing had been suspended, and again restored when the sense irritation was removed; and such a case may be due to the same mechanism as is the suspension of hearing under a violent emotional influence.—(*British Medical Journal.*)

Malaria and Indigestion.

Dr. Paul de Groote, connected with the Belgian Congo Region, in a work relating to the hygiene of the Congo country, in which a careful study is made of the climate of that region, takes the ground that malaria often begins in that region with digestive disorders. Studies of this question, which have been made by various observers in recent times, have accumulated much evidence in support of the view that malaria is commonly introduced into the system through the alimentary canal, either by drinking water infected with the parasites, or by receiving the parasites into the mouth through the inhalation of infected fogs. The giant cells exercise a protective influence through the action of phagocytes, a function which they exercise in a high degree. It seems very probable, indeed, that on the disablement of these cells through the toxic influence of the products of indigestion, the system loses its ability to defend itself against the parasitic action of malaria, and thus becomes subject to the disease under conditions which would not produce the disease in a perfectly healthy person. Many physicians have noticed the relation between liver and digestive disorders in malarial disease. This subject is one concerning which we shall doubtless know more a few years hence.—*Mod. Med.*

Urinary Test for Acute Pneumonic Tuberculosis.

Frænkel (*Hospital-Tidende*) has recently published a note in relation to this disease, in which he mentions the fact that Ehrlich's

diazo reaction was present and pronounced in all the fatal cases, but was absent in those that recovered. The test is as follows (we quote from Purdy):—

"Two solutions are prepared, as follows:—

"1. Two grams of sulphanilic acid; 50 cubic centimeters of hydrochloric acid; 1000 cubic centimeters of distilled water.

"2. A 0.5-per cent solution of sodium nitrate.

"In performing the test, 50 parts of No. 1 and 1 part of No. 2 are mixed, and equal parts of this mixture and of the urine in a test-tube is rendered strongly alkaline with ammonium. If the reaction be positive, the solution assumes a carmine-red color, which on shaking must also appear in the foam. Upon standing for twenty-four hours, greenish precipitate is formed.

"The test must not be considered positive unless a distinct red coloration extends to and includes the foam, on shaking."

This test is also present in typhoid fever. According to Ehrlich, when a faint reaction is encountered, it indicates a mild attack of fever and of short duration. Ehrlich's observation agrees with those of Frænkel, that the diazo reaction is present in pulmonary tuberculosis only in severe cases which run a rapid and fatal course.—*Mod. Med.*

Grief from a Medical Standpoint.

The nervous system requires complete rest after blows caused by sorrow. Recent medical observations show that the physical results of depressing emotions are similar to those caused by bodily accidents, fatigue, chill, partial starvation, and loss of blood. Birds, moles and dogs which apparently died in consequence of capture, and from conditions that correspond in human beings to acute mostalgia and "broken heart," were examined after death as to the condition of their internal organs, and it was found that the nutrition of the tissues had been interfered with, and the substance proper of various vital organs had undergone the same kind of degeneration as that brought about by phosphorus or the germs of infectious disease. The poison of grief is more than a man. To urge work, study, travel, the vain search for amusements, is both useless and dangerous. For a time the whole organism is overthrown, and temporary seclusion is imperative for proper readjustment.

Grief cannot be ignored, neither can it be cheered up. It must be accepted and allowed to wear itself away. Readjustment ment comes slowly. Sorrow, grief, and all great misfortunes should be regarded as conditions similar to acute infectious diseases which they resemble in result; and later, as convalescence from such diseases. Seclusion, rest, sleep, appropriate food, fresh air, sunshine, interests that tax either mind nor body, these are requirements in this class of illness.—*Charlotte Med. Journal.*

Impacted Fish Bones.

The difficulty of removing fish bones and similar obstructions, impacted at the lower end of the œsophagus, is well known, and various mechanical measures and appliances have been invented to deal with the difficulty. One of the most simple, however, and it reported one of the most effectual, in the case of impaction of such foreign bodies, is to administer to the patient a pint of milk, and forty minutes afterward an emetic of sulphate o zinc. The fluid easily passes the obstruction, and is, of course, rapidly coagulated in the stomach into a more or less solid mass, which, on being ejected, forces the obstruction before it, and so effects its removal.—*Med. Times.*

Academie de Medecine.

Sudden death on the bicycle.—M. L. H. Petit reported three cases of sudden death following the use of the bicycle, all in persons suffering from a cardiac affection. The first case was that of man 60 years, robust in physique, who had practised with his teacher for a month, and who, during a lesson, feeling indisposed, called the teacher and died in his arms. The second case was that of a physician, who wished to reduce his size by bicycle-riding. He had never had any cardiac trouble. At the end of several months he was attacked with dyspnœa and excessive pain in the heart. He descended from his machine, seated himself on a bench, and died shortly after. The third case was that of a clubman, about 40 years old who died on his bicycle on one of the streets of Paris. He also had a cardiac affection.

From the 1st of January to the 27th of August, the Prefecture of Police issued 32,996 permits for the use of the bicycle. As many persons do not apply for permits until compelled to do so, it may be said that there are about 100,0000 persons in Paris who use the velocipede. It is probably not an exaggeration to estimate that of this number 1 in each 1000 suffers from some cardiac trouble, and it is therefore well to call attention to the risks which they run in this sport.

Old age in itself, according to M. Petit, should be regarded as a contraindication, without any reference to heart disease. The use of the bicycle requires a suppleness, an attention, and an expense of strength which cannot be permitted to elderly persons without fear of bad results.—*Gazette des Hopitaux.*

Chronic Cocainism of Nasal Origin.

Dr. Loewenberg (*Bul. Med.*) Two cases of the cocaine habit as a result of local applications of the drug to the nasal mucous membrane are reported.

The first, a young woman, with hereditary taint, had been given by her physician a powder containing cocaine hydrochlorate to apply to the nasal cavity three times a day for a coryza. The sensation furnished by this procedure proved such an agreeable one that by increasing gradually the number of daily applications the patient finally arrived at snuffing up twenty-five grains a day.

The resulting nervous manifestations were not long in appearing. They consisted in

agitation, insomnia, auditory and visual hallucinations, delusions of persecution, homicidal and suicidal impulses, etc.

A cure, though slow in coming, was finally effected.

The second case, like the first, acquired the habit therapeutically, but the resulting psychic disorders took the form of melancholia. This case was milder and yielded more easily to treatment than the first. It may be added that neither of these patients suspected herself to be the victim of a drug habit.

So good an authority as J. Lewis Smith has recently spoken against the practice of lancing infants' gums. In a paper read before the New York County Medical Association (*Medical Record*) he said the belief still prevails to a wide extent that the cutting of teeth is a common cause, not only of painful gums and poor appetite, but also of enterocolitis and other serious maladies, which are often allowed to run along until beyond the skill of the physician Our ancestors in the profession were to blame for the widespread impression that much disease is due to dentition, since at one time it was a common custom to incise the gums. As to lancing the gums, he thought one could get along as well without it. If the gums are red and irritated, there must be some other condition to account for the irritation. He did not think the physiological process of normal dentition was to be interfered with any more than any other physiological process.

SURGERY.

The Pulse in Clinical Surgery.

The *Revue Internationale de Medicine et de Chirurgie Pratiques* contains a review of a work by M. Francois Bertonnier on this subject (*N. Y. Med. Jour.*) In this interesting work, says the writer, the author first recalls Marey's statement as follows: "The pulse is the sensation of sudden swelling felt by the finger which palpates an artery. The blood-vessel that allows itself to be depressed becomes suddenly hard each time that a systole of the heart increases the arterial tension." Bertonnier then considers this physiological phenomenon with regard to its frequency, its power, and its rhythm. In two chapters he explains the connection between the pulse and the temperature, also the usefullness of examining the pulse in cases of severe hemorrhage. His principal conclusions are the following:

1. The discordance of the two curves, that of the temperature and that of the pulse, is often an indication of a serious condition.

2. In grave hemorrhage the great depression of the pulse that accompanies it has sffiuced occasionaliy to indicate the true diagnosis.

3. In traumatic shock or that following an operation the degree of slenderness, of frequency, and of irregularity of the pulse will be the most exact measure of the violence of shock and of the patient's vital resistance.

4. In traumatic crania-cerebral lesions extreme slowness of the pulse is a never-varying sign of concussion, of contusion, or of cerebral compression. Eventually, its acceieration with elevation of temperature is a sign of meningo encephalitis.

5. The pulse should often be a guide in surgical interference in traumatic or inflammatory affections of the abdomen.

6. The absence of arterial pulsation at the extremity of a member is a very important sign and calls for a prompt determination.

Finally, the pulse, under the influence of chloroform, by its irregularity, intermittence, and arrhythmia, indicates, even better than auscultation of the heart, that the valvular lesions are badly compensated for, and that there is danger in the administration of chloroform.

Sudden Death in Consequence of a Urethral Injection of Cocaine.

In the *Centralblatt f. Chirurgie* we find an account published in *La France Medical* by M. Reclus, of a case in which sudden death followed an injection of about six drachms of a five per cent solution of cocaine into the urethra. The urethral mucous membrane appeared to be quite intact, and the death was attributed to pronounced arterio sclerosis and to the undue quantity of the drug employed.—*N. N. Med. Jour.*

Creolin in Ulcers of the Leg.

Dr. S. Tousey (Medic. Progress.) In sloughing ulcers of the leg with overpowering stench and a thick layer of grayish slough, secreting a thin, watery fluid, Dr T. recommends a dressing of six or eight layers of cheese cloth, to be kept constantly wet with a 2-per-cent. aqueous solution of creolin. Creolin forms a whitish emulsion with water, which is not irritating, even to an eczematous skin, and which is powerfully antiseptic and deodorant.

It is reported that under its use the slough rapidly disappears and the odor is abolished almost from the very start. The bandage should be kept wet without removing it, for the dressing becomes very painful the moment it begins to dry; or the bandages may be prevented from drying by covering the wet pad of gauze with a layer of rubber tissue before the usual unbleached muslin bandage is applied.

When the slough and offensive odor have disappeared the ulcer is to be treated by either soothing or stimulating applications.

Asepsis in Catheterism.

A recent uumber of *Przeglad Chirurgiczny* the Polish surgical review, is largely taken up by Dr. S. Grosglik's article on Asepsis in Catheterism. Reviewing the methods usually employed for sterilizing catheters and bougies, he finds most of them to be unsatisfactory. Bacteriological experiments made by himself showed that neither mechanical cleansing nor the use of liquid anti-

septics, sulphurous-acid gas or mercurial vapors thoroughly sterilized instruments which had been artificially infected with cultivations of staphylococci and streptococci. This end can only, he affirms, be gained by employing moist heat Dr. Grosglik describes fully an apparatus, apparently simple and effective, which he has devised for this purpose. In this the instruments are sterilized in five minutes. Elastic instruments, it may be noted, are declared to be unaltered by the process. A useful bibliography is appended to this article.—*London Lancet.*

GYNECOLOGY.

Multilocular Ovarian (?) Cyst. Adherent to the Mesenterium which Furnished its Blood-Vessels and Completely Separated from both Ovaries.

George Buchanan, of Glasgow, (Interent. klin. Rundschau.

A curious case is here reported, which the author in thirty years' experience in laparotomies has met for the first time. Patient was 42 years of age, had three children, the last eighteen months previous to operation, with normal puerperium each time. The tumor was a large one, presenting all the clinical features of a multilocular ovarian cyst, and so completely filling out the abdominal cavity that after finding it free anteriorly and laterally the operator had to reduce its size with the ovarian trocar before being able to explore it posteriorly. The fluid evacuated was pale green in color, fatty, and contained white flocculi. Examined microscopically cholesterin, drops of fat, and epithelial cells were found. Posteriorly the cyst was adherent to the mesentery and a large coil of intestine. The adhesions were separated with the fingers, and a band containing large blood-vessels ligated with catgut and severed. The tumor was then removed, and some bleeding vessels, at the edge of the mesentery, ligated with fine catgut. No vestige of ovary, fallopian tube, or uterus could be detected in peritoneal covering or cyst wall. Utherus and adnexa were found in normal condition. Patient made an uninterrupted, complete recovery.

Its anatomical structure and the examination of its contents showed the cyst to be of ovarian and not of parovarian origin.

Probably the cyst grew from the ovary, became adherent to the mesentery in an early stage, receiving blood-vessels from it; through peristalsis it may have been drawn from the ovary, and its ovarian pedicle, stretched or twisted by some unusual motion, or the growth of the uterus in pregnancy, and thus atrophied and then absorbed.

A New and Speedy Method or Dilating A Rigid Os in Parturition.

(*Amer. Jour. of Obstet.*) Dr. Farrer related two cases of rigid os, in one of which, after endeavoring vainly to relax the cervix by the aid of chloral, bromide of potassium, and morphia, followed by most persevering attempts at digital and mechanical dilatation, with and without chloroform, he applied a ten per cent. solution of cocaine preparatory to incising the edge of the os. After five minutes, on introducing the finger as a guide to the scissors, the os was found widely dilated. In the second case, which, like the first, was that of a primipara (age 48), where no dilatation occurred, although the same means as were tried in the first case were used, he waited three days and then applied the cocaine. In four minutes the os was found to have yielded. He considered the dilatation to be due to the cocaine in both cases.

Uterine hemorrhages are usually treated by the internal administration of ergot, hydrastis, encalyptus, cinnamon or a combination of these. When these do not control the hemorrhages Dr. Talley has been using with excellent results *atropin sulfate* (gr. $\frac{1}{100}$) repeated with sufficient frequency to cause dryness of the throat. In private cases the administration of the drug is preferably by hypodermatic injection. The result is so rapid and permanent that it is used almost in a routine manner in the gynecologic clinic.—*Phila. Polychin.*

The Pelvis in Lame Children.

Prouvost (*Revue Obstet. Internat.*) says the obstetric prospects of little girls troubled with lameness are compromised, and as this, like many worse infirmities, does not always exclude the sufferer from marriage and impregnation, the extent to which the pelvic bones may become involved is a matter of interest to the obstetrician. Prouvost holds that in order to safeguard the pelvis the child must never walk without the aid of two crutches. In seven cases where no support was used, the child hobbling about without crutches or even a stick, there was distinct flattening of the pelvis on the side corresponding to the lame leg. The use of a stout stick or even of one crutch was found insufficient, in all observed cases, to ensure thorough development of the pelvis even when the deformity began at about the fourteenth year. In short, the crippled girl must make use of crutches till she is at least sixteen. In his paper Prouvost discusses the orthopædic aspect of the question very thoroughly.

The Cold Bath in Puerperal Septicæmia, and for High Temperature in Pregnancy.

Fochier (*Progres Med.*) raised a discussion on this subject when reading notes of a case in which toxæmia existed during pregnancy. She had seen no period since her first confinement six years previously, and mental symptoms developed. When the second pregnancy set in the sight failed. Milk diet was enforced. Eclampsia occurred, and notwithstanding palliative treatment the temperature rose above 105°, the pulse could not be counted, and breathing was stertorous. The patient was placed in a bath at 77° F.

Within ten minutes the pulse fell to 100, then to 80. The patient came to her senses, and was removed from the bath. Two hours later she was again placed in the bath, this time at 90°, and cold affusions were applied to the head for half an hour. The patient recovered. Gaulard mentioned a labor case in which a student conveyed septic infection. After delivery a rigor occurred, the temperature rose to 104°; the curette was used, and the temperature then rose to 106°. For a fortnight cold baths were given, the temperature being lowered till it stood at last at 98.° Suppurative parotitis developed during this treatment. Gaulard asked Fochier if the latter was not the cause of the ultimate cure of the patient. Both the cold bath and the provocation of abscess at a fixed spot were methods practiced in the Lyons lying-in hospitals. Gaulard had tried the abscess method, and found that the results were not satisfactory. He once injected turpentine subcutaneously, but the patient died with two enormous phlegmons. Fochier remarked that the cold bath should never be administered when the temperature oscillates, but only when it keeps high for a long time. This method requires greater precautions in high temperature during pregnancy and childbed than in the treatment of typhoid fever, where there are none of the great falls of temperature so frequent in disorders of gestation.

OBSTETRICS.

A Few Points in Obstetrics.

No branch of a physicians practice requires more self-poise, where so many complications arise, commanding our sympathy and demanding our skill, than that of obstetrics, and when disease and death follow a normal case of labor, the cause can be traced to none other than to ignorance or mismanagement, *Med. Rev.*

With these preliminary remarks, Ewing advances a few aphorisms relating to obstetrics.

1. Examine the urine a week or so before the exected confinement. Albumin need not cause alarm, unless present in large quantity, in which case the woman should be restricted to milk diet, given one-tenth grain of sulphate sparteine four times a day, and bowels kept open with cream of tartar, the object being, of course to relieve congestion of the renal veins.

2. Make no digital examination without first cleansing the hands and nails, together with the external genitals, with a solution of bichloride of mercury (1 to 2,000) and ethereal soap.

3. Empty the rectum thoroughly with an injection of warm water.

4. Make as few examinations as possible during progress of labor, and each time dip the hand first in the antiseptic solution.

5. If the presenting part emerges slowly from the womb, do not allow your impatience to so get the better of your judgment as to induce you to "assist nature" by pulling on the os. Probably all the deep pathological tears, calling for surgical interference, found on the right and upper anterior sides of the cervix, are caused by the finger of the accoucheur.

Vassali in the *Lombardy Medical Gazette* (Italy,) communicates the case of a birth of sextuplets, one of the few if not the only genuine cases on record of such an event. The children were delivered on the 115th day of pregnancy after straining at defecation. All the fœtuses were born alive. The large single placenta bearing the six amniotic sacs is preserved in the museum of the Obstetrical Society in Milan.

EAR, NOSE, SKIN.

Treatment of Acute Coryza in Nurslings.

(*La. Sem. Med.*,) According to Lewy, when acute rhinitis, which may occur in nurslings in summer heat as well as during winter cold, does not lead to such nasal occlusions as to prevent suckling, it needs no treatment. Sometimes, however, treatment is necessary, and the author has seen advantage from the use of terpin hydrate, 5 ctg. being given in children below one year, and 10 ctg. in children above that age. Vaselin should be used freely in all instances to prevent the formation of an eczema of the upper lip, generally a very rebellious lesion when consecutive to a coryza. As the nasal mucus in this affection has an alkaline reaction, it is well to incorporate a little boric or salicylic acid into the vaselin.

Where the obstruction from swelling of the nasal musco is so severe as to actually interfere with nursing, it is well to restore nasal potency with the use, on a cotton swab, of a five-per-cent. solution of cocaine; but this necessitates the constant attention of the physician. A simpler and yet efficacious way is to introduce into the nostrils small cotton cylinders dipped in a one-per-cent. cocaine solution and then compress the sides of the nose. The liquid is thus brought in contact with the turbinated bones, and, and at the same time, the head being depressed, it naturally escapes, so that none is swallowed.

As an adjuvant to the foregoing, insufflations may be made of a powder, to be used at each nursing, of cocaine and menthol, of each 10 ctg. Sugar of milk, 10 grn.; a pinch to be used each time.

Finally, in cases of purulent rhinitis, we should irrigate with tepid (non-saline) water and insufflate as before a pinch of the following:

Silver Nitrate	1 grn.
Powdered Talc	20 grn.

(Stearate of zinc may replace the talc in this instance.—Abstr.)

The Care of the Ears During the Course of the Exanthemata.

Dr. W. C. Phillips says that the frequent dependence of ear troubles upon the exanthemata was shown by statistics of the Royal Hospital for sick children in Glasgow. In 600 cases 131 originated during measles, 63 during scarlet fever, and others from other

exanthemata. Patients affected with these diseases exhibited a general inflammatory condition of the entire nasal and naso-pharyngeal mucosa, frequently extreme induration, both of which had a marked tendency to involve the eustachian tubes. Enlarged tonsels and lymphoid tissue were apt to become much increased and further aggravate the symptoms. The secretions retained in the tympanum, because of the narrowing of the tube, caused middle-ear inflammation. For prevention he recommended frequent cleansing of the nose and naso-pharynx. The child should frequently clear the nose by blowing. Keep the eustachian tubes clear from obstruction, if possible, from the first. This can be done by the use of sprays or douches of mild antiseptic solutions, Dobell's solution, boracic acid, diluted listerine, alternated hourly with medicated oil sprays.—*Medical Record.*

Acquired Atresia Vaginæ.

Blenk (*Centralbl. f. Gynak.*) relates the case of a girl who became pregnant; in order to procure abortion she allowed a solution of a mineral acid to be injected into the vagina, but without the intended effect. At labor the atresia could not be overcome, and craniotomy was necessary. The child weighed nearly 7 pounds.

Syphilis and Suckling.

Eudlitz (*Arch. Gen. de Med.*), relates a very grave case of contagion of this kind. Twenty-three years ago a woman suckled the syphilitic child of another mother. A chancre developed on her nipple; her own child became infected. The results were particularly disastrous to him, for though he is now 23 years old he is absolutely devoid of hair on the face, the genitals are undeveloped or rather atrophied, and he is in other respects quite a child.

How Cocaine Kills.

Maurel says that cocaine kills by: 1. Diluting the small vesels. 2. Paralyzing the leucocytes; strong doses taken by the stomach act in this way. The toxic effect is proportional to the number of leucocytes paralyzed. Small doses, hypodermically, or in the veins, may act by paralyzing some cells which then may become emboli. Large doses may be injected into the arteries without killing.

The Treatment of Severe Nose-Bleed.

Miot (*Rev. internat. de Rhin. v.*) The author states that severe bleeding from the erectile tissues of the nose is best checked by positive interstital electrolysis. This method can be employed, whether the hemorrhage is from a small or large area. The nature of the needles employed is practically a matter of indifference, though he believes that those of silver or copper are the most efficacious. The intensity of current employed ought to run from sixteen to twenty milliamperes, and the duration of each seance may be from eight to ten minutes. In exceptional cases three or four sittings may be necessary. Hemostasis in this region can be brought about without any bad results, though there exist between this region and the brain important vascular relations.

DERMATOLOGY.

Cannabis for Itching.

Phil. Polyclin. Mackenzie has found the Indian hemp to give relief in cases of skin diseases, where the itching was not amenable to local means. The full effect must be produced promptly. For this purpose he employs the tincture in doses of ten drops, on sugar, repeated as often as necessary.

NEWS AND MISCELLANY.

G. A. R: National Encampment, Louisville, Ky.

Reduced Rates via B. & O.

The B. & O. R. R. Co., will sell Excursion Tickets to Louisville and return at all Ticket Stations on its lines east of the Ohio River, at rate of one cent per mile each way for the round trip, for all trains September 7th to 10th, inclusive, valid for return journey until October 6th inclusive. Tickets will also be placed on sale, via B. & O., at offices of all connecting lines. Stop overs will be allowed on the return trip.

Veterans will bear in mind that all B. & O. trains run via Washington and Harper's Ferry.

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ORIGINAL ARTICLES.

WHAT SHALL WE DO WITH ALCOHOLIC INEBRIATES?*

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The term inebriate in this paper will refer to all shades and degrees of inebriety. The person who is drinking moderately, or having his first drunk, is inebriated as well as the habitual drunkard. The difference between these two classes of inebriates is only in degree. The proper care of the alcoholic inebriate is a problem whose solution has had assiduous thought and profound study from time almost immemorial. Wise statesmen and broad philanthropists have given it their best energies. The medical profession has not been unmindful of its importance as evidenced by the great mass of literature upon it published in medical journals and by discussions at medical meetings. So thoroughly has this field been cultivated that nothing new or startling will be attempted in this paper by way of enumerating the evils of inebriety or recommending a plan for their cure. The continued existence of these evils apparently without abatement and a great lack of unanimity of opinion upon the best means to be used for their restriction and suppression, are a full warrant for a discussion of this question at every convenient opportunity; indeed, it calls loudly to the medical profession for an enlightened and persistent consideration, and an answer which will meet the exigencies of the situation.

The alcoholic drink-bill of the nations is appalling. It easily foots up into many billions annually. Concerning the death-rate from alcoholic inebriety it is doubtful if reliable statistics are obtainable. Estimates carefully made on this point by competent writers state that it carries to the grave yearly from 60,000 to100,000 of our citizens. The observation of the writer has led him to the conclusion that oftentimes deaths from alcoholic inebriety are reported by attending physicians as due to some other disease out of regard for the sensitive feelings of friends. Even though the above estimated death-rate may be regarded as too large there is no doubt that the death-rate from this disease is very great, running up annually into scores of thousands: indirectly it is probably responsible for a far greater number than 100,000. It is the foundation of many diseased conditions of the nervous system, liver, heart, kidneys, lungs; indeed, the inebriate is likely to suffer from a perversion of nearly all the solids and fluids of the body. Not infrequently the inebriated life ends in insanity, idiocy, epilepsy, fatty degeneration of the heart, cirrhosis of the liver, paralysis, Bright's disease of the kidneys, phthisis pulmonalis.

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The number of yearly arrests for drunkenness in all our large cities points to an increase of this disease. During 1894 in New York city there were 19,538 arrests for drunkenness, as shown by records of the police department. In Great Britain in 1890 there were 173,036 convictions for drunkenness. In 1892 33,000 women were convicted for drunkenness in the same country. Dr. Crothers has estimated that a million and a half of the inhabitants of the United States are constantly suffering from alcoholic inebriety. It has been estimated that in Great Britain there are 700,000 habitual drunkards.

Oftentimes heredity plays a large part in the life of the alcoholic inebriate. The appetite for alcoholic intoxicants received from some ancestor leads on to dipsomania and a thousand ills of the flesh, to distortion of the intellect and immorality.

Alcoholic inebriety is the prolific mother of crime and poverty; it disturbs the inalienable rights of the peaceful citizen and imposes a heavy burden upon the taxpayer; no other force is so potent in undermining the integrity of our national life. Accurate statistics relating to murders committed by alcoholic inebriates are not readily obtainable and are more or less unreliable. Coroners in reporting such cases are not always careful to state that inebriety was their genuine cause. Compilers do not always mention the cause of murder, even though it may have been stated correctly. Such statistics do not declare the whole truth, and hence are misleading. A prominent liquor paper concedes that nearly 500 murders are committed annually in this country as the result of alcoholic inebriety. Dr. Story states that the number of murders from drunkenness annually committed in the United States is 600. According to a high-license journal, 1,130 murders were caused by liquor in the United States in one year. Remarks similar to the above are applicable to the difficulty of obtaining accurate statistics concerning those suicides which are committed by the alcoholized maniac. The real cause of the suicide is often buried under a wrong name. The reader of a daily paper of any of our large cities must be satisfied that the suicides from this disease are very numerous. Dr. Story places the annual number in the United States at 400. In 1893 in Prussia occurred 500 suicides among inebriates. Prof. Westergaard has said that out of 100 suicides in Denmark forty-four were notorious drunkards. In France 401 was the number of suicides from drunkenness in 1886.

Alcoholic inebriety plays an important role as a cause of accidents. The shipmaster, railroad engineer, trolley motorman, cable gripman, coachman, and all kinds of vehicle drivers, inebriated by alcohol send many an innocent victim to death. The alcoholized brain of husband and father is responsible for many disfigured wives and crippled children. I forbear to present in detail more of the evils for which alcoholic inebriety is directly responsible. Their severity and universality are well known. By their enormity and ever-increasing outflow they are a constant menace to the stability of the republic. Their restriction and extirpation demand the best services of phypician, philanthropist and citizen.

For the requirements of this paper alcoholic inebriates may be classified in accordance with their drinking habit as follows:

1. The moderate drinker.
2. The excessive drinker.

The moderate drinker takes a glass of liquor occasionally, say of wine or beer with his daily meals or socially with a friend in the evening and once in a while some stronger alcoholic beverage. Perhaps, at long intervals he may drink enough to become slightly intoxicated. As soon as his drinking habits have carried him to the point where his intellect and physical system have become visibly affected as shown by his conduct, he may be properly classed with the excessive drinkes. Notwithstanding his moderation he is daily poisoning himself with alcohol; he is an inebriate and is suffering from the disease of alcoholic inebriety.

What shall be done for the moderate inebriate? As long as he keeps within the bounds of decency, has not become a nuisance, is able to take care of himself, his family, and his property intelligently, is not a menace to the peace and welfare of society, has committed no crime, the law cannot take any cognizance of his acts. He may be guilty of withholding from those naturally dependent on him, from society and from the State his best services, but for this law can not punish him and can place upon him no restraint. The

total abandonment of the drinking habit is all-important for this class of drinkers. As long as the habit is continued, fuel is being added to a fire which is gradually destroying the physical and mental integrity. All reasonable methods which will accomplish this object should be adopted. In this matter the medical profession has an obligation which it should discharge with strict fidelity. In doing so it should become a wise counselor and teacher. On account of its anesthetic property alcohol is a deceiver and hence the moderate taker of it may not realize its damaging effects till he has been using it for many years. He may call his physician for a disease which is the result of his ingestion of alcohol. Then is the time when the wise and humane doctor, without being subject to the charge of intermeddling, can and should clearly and forcibly point out to his patient the dangers of the road which he is traveling and the goal of a wrecked life which he is sure to reach if he does not abandon his inebriating habit. The physician who does not adopt this course does not assume the high privilege to which his position entitles him and fails to do his duty to the patient under his care; his professional obligation binds him to aid the weakened will by all forces at his command, and by proper regimen and medication to restore, if possible, the injured system to its former healthy condition.

By public addresses, magazine and newspaper articles, private conversation, and especially by example the members of the medical profession can teach influential lessons on this subject to the communities in which they reside. They can show the poisonous nature of alcoholic beverages, their ravages upon the various organs of the body even when taken moderately, their power to weaken the will and moral sense, their inutility in aiding the vital processes of the healthy body and in conducing to longevity, the danger that a moderate habit will lead to an excessive habit. The people will listen more attentively to such teachings from the medical profession than from any other source. This is a work to be done in behalf of hygiene and along the line of preventive medicine. The physician can find no broader field for the exercise of the noblest powers.

The excessive inebriate is generally the outgrowth of the moderate inebriate. He drinks to such an extent that the alcohol makes a profound impression on his system; one or more of the diseases of which alcohol is the prominent causal factor, fastens upon him; the nervous system is specially affected, as shown by unsteady gait, trembling hands, altered speech; those phases of inebriety known as delirium tremens and dipsomania may follow; mental alienation is oftentimes a sequence; the victim may become demented; the baser faculties are roused to increased activity and control the moral forces; the man is overwhelmed by bad passions and, may commit crimes of all kinds and degrees. The excessive inebriate is a diseased, degenerated individual. He belongs to the vast army of defectives; he is a dangerous character, a constant menace to the welfare of home, the peace and good order of society; at times he may have the appearance of comparative physical health and mental soundness, may even attend to his business with a certain degree of exactness, but the hour when the alcoholic poison will assume dominion over him no one can foretell; his relation to his environment is very similar to that of an insane person, and to a large extent he should be treated as are the insane; indeed his case often assumes a form of insanity.

For the treatment of the excessive inebriate many plans and devices have been suggested—some being the product of dense ignorance and a barbarian age, others, the outcome of an enlightened spirit of scientific investigation. The inebriate will not receive the best treatment for restoration to physical and mental health until alcoholic inebriety has been clearly recognized as a disease both by the medical profession and the laity. All along the centuries the excesses of the habitual drunkard have been regarded as of sufficient importance to call for restraint and punishment. The severe laws of Draco punished drunkenness with death. In the early history of the Massachusetts colony each offence of treating and drinking to the health of another was punished by a fine of fourteen pence. In St. Petersburg at the present day, "Any one found drunk in the street is imprisoned from one to three days and the person from whom the last drink was bought, if he can be found, is fined from five to twenty-five roubles." The present law of Minnesota punishes

drunkards with fine and imprisonment. Massachusetts has a law which makes imprisonment the only punishment for drunkenness. In Sweden, if a man is seen drunk four times he is deprived of his electoral vote. By advice of its best physicians, Saxony has made drunkenness a crime.

During the last twenty-five years homes for the alcoholic inebriate of both a private and public character have been established in this country and in Europe. Dr. Crothers is authority for the statement that in 1887 there were fifty hospitals in America for the treatment of inebriety, with over 1,000 patients, besides about 1,000 under treatment in private familes. In a few instances inebriate hospitals have been founded and are supported by public moneys.

The particular method of treatment adopted for the excessive inebriate has depended largely upon the view taken of his condition. He has been regarded as diseased, as vicious and as a criminal. The physician who makes inebriety a specialty insists upon medical treatment; the reformer advocates moral suasion and a strengthening of the will by educational influences; the magistrate adopts a system of fines and imprisonment. It is my belief that the alcoholic inebriate has all three characteristics. He is suffering from disease, haa adopted a vicious habit, and not infrequently commits crime. His disease, which is the result of heredity or a vicious custom, demands the serious attention and profound skill of his physician. In its early stages it should not be neglected, as is too often the case. As a general rule neither the inebriate himself nor his family apprehends any danger until his inebriated condition has become chronic and has gone far on the road which leads to delirium tremens or dipsomania or dementia; indeed, the suggestion that he requires any formal or persistent treatment in the early period of his malady is met with a positive denial. But this stage of the disease is the most hopefnl for restoration to former soundess of mind and body; this is the time when friends and physicians should be on the alert, for now considerate care and treatment may save from disappointment and ruin. Treatment in a hospital specially adapted for the purpose has many advantages over treatment at home. The patient will be placed outside of an environment which has contributed to a continuance of his vicious habit, he will be prevented from transmitting any of his characteristic to a future generation, he will be kept from committing crime, he will be under the superintendence of physicians who have made his disease a special study; he will have the constant care of attendants who have been trained for their special work. But hospital treatment will not be of permanent utility unless sufficient time has been given to it for a thorough restoration to soundness. The custom of confining an inebriate to a hospital for a single month, or in many cases for several months, fails as a general rule to accomplish the object of the confinement. Not infrequently several years of treatment are needful to repair the damages of many years of indulgence. Statistics of hospital treatment show permanent cures in from one-third to one-half the cases. Incurable cases of alcoholic inebriety should be placed in a hospital for incurables.

No case of drunkenness should be allowed upon the public streets or in a public place. A drunken person is a nuisance and dangerous to the public welfare. Although the habitual drunkard may never have been disorderly, nor in any way disturbed the peace, no foresight can determine how long he will be free from criminal intent; at any moment he is liable to commit an assault or murder. All persons when drnnken in public should be arrested and brought before a magistrate for trial. The long-continued and almost universal practice of imposing a fine and committing to jail for a few days should no longer exist. In cases in which no crime has been committed the inebriate should be sent to an inebriate hospital for treatment until he is cured. If a crime has been committed an expert commission of medical men should determine whether the inebriated criminal was responsible for his crime; if responsible he may be incarcerated for a term of years in an institution where he can receive proper treatment for the cure of his inebriety. Every case of alcoholic inebriety brought before a magistrate should be investigated by a medical commission appointed for the purpose and upon its report should be based the magistrate's decision. The records of our own and foreign courts show through many years of trial that punish-

ment has had a very meagre outcome in restoration to health and permanent moral improvement. Such a course of procedure as is adopted in most of our courts is a relic of the dark ages and should be tolerated no longer by an enlightened people. Field says: "The records of the workhouse show that it has no effect to deter men from drinking and one woman was sentenced twenty-eight times in twenty-five months." Dana states that "The number of persons arrested for intoxication in New York city every year is about 30,000: most of these are fined or sent to the Island or both."

In looking over our country I am forced to the conclusion that as citizens and physicians we are doing far too little for the inebriated portion of our population. Since by inhuman laws we permit the sale of alcoholic intoxicants as beverages and thus encourage inebriety, surely we ought to repair so far as possible the damages for which in a large measure we are responsible. It has been well said that a government should enact such laws as will make it hard for its citizens to do wrong and easy to do right.

There seems to exist no good reason why both from private and public sources the insane should have larger and more humane provisions than the alcoholic inebriate. The comparatively few private institutions for the cure of inebriety scattered through the country and the less than half a dozen public inebriate hospitals should be supplemented by at least one such hospital maintained by public expense in every State; and, in many States, there should be several. For the reformation and care of their inmates these hospitals should be equipped with all the appliances which the most advanced thought of the age can suggest and money supply; including a gymnasium, lecture hall, reading room, and library. With each one should be connected an industrial department and work by every inmate should be compulsory. A military training school may also be a useful adjunct to such an institution. For the superintendence of each should be selected a physician who has made inebriety a special study and has a practical knowledge of the best methods of its cure.

The cost of erecting, equipping and maintaining such hospitals the State would very soon save in the lessened expense attached to murder, suicide, theft, arson, accident, disease, poverty caused by the inebriate permitted to run at large. To these institutions should be sent all excessive inebriates except such as belong to families that will convert their own homes into private inebriate hospitals. Those inebriates who will not enter a hospital voluntarily should be compelled to do so by the strong arm of the law. The inebriate without estate who is under State care should be supported by State moneys. His family also should have necessary aid from the State during his detention. This method is in vogue in one of the cantons of Switzerland. These establishments should resemble as far as possible well-ordered homes.

The author of this paper does not wish to be understood as condoning the crimes of responsible criminals but as recommending the abandonment of many barbarous methods now in use for the punishment of the alcoholic inebriate, and as advocating a reasonable method of treatment for his reformation and cure in consonance with the enlightened and scientific spirit of these last years of the nineteenth century.

The special thoughts which have forced themselves upon my attention in the study of this subject may be summarized as follows:

The importance of this question is shown by the magnitude of the evils of inebriety and their disastrous effects upon individuals, communities, and the nation.

For the purpose of conserving the public health and of promoting the elevation of the race, the medical profession should take an active and abiding interest in this subject.

The prime factor in the treatment of both the moderate and excessive inebriate is the total abandonment of the drinking habit

For many reasons the alcoholic inebriate can be treated more successfully in an inebriate hospital properly equipped and wisely managed than in any other place.

Compulsory committal to an inebriate hospital and detention therein until cured should be made lawful for all excessive alcoholic inebriates who will enter such an institution and submit to proper restraint voluntarily.

The prevailing mode of punishing the alcoholic inebriate by fine and incarceration in any ordinary jail or prison should be abandoned.

The cases of all alcoholic inebriates who

are arrested and brought before a magistrate should be disposed of in accordance with the report of a medical commission.

The inebriated criminal found responsible for his crime should be confined to an institution where he will receive proher treatment for his disease.

State care and control of the alcoholic inebriate should be the persistent policy of every State in the Union.

The medical profession should make a vigorous protest against placing in a cold, damp cell of a police station, without medical care, those persons who are found on the street in an unconscious or semi-conscious state of drunkenness. Such cases require warm, comfortable quarters and medical attendance.

The alcoholic inebriate will not receive appropriate treatment until the prime workers in the fields of medical science and philanthrophy have recognized him as a defective diseased, dependent, dangerous member of society.

RICKETS.

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Rickets may be defind as a constitutional disease of infancy and early childhood affecting the whole body, but chiefly characterized by a softening and deformity of the osseous system.

Since the publication of Glisson's treatise in 1650, rachitis, or rickets, has received the attention of so many observers that it now has a very extensive bibliography of its own; but in spite of the large number of investigators there is much concerning the disease that is yet obscure. In this country rickets has not, till recently, received much notice for the reason that it has become common in the United States only in recent years. The cause of its noticeable increase is increased immigration from European countries where it prevails, and the distribution through the northern cities of the American negro which followed the abolition of slavery and the close of the civil war.

The geographical distribution of rickets is not its least interesting feature. It is practically unknown in tropical countries, and is a disease peculiar to the northern temperate zone. But it also has racial preferences. Kassovitz is authority for the statement that eighty per cent. of the children of Vienna are rachitic. It is also very common in northern Italy, France, Germany, Russia, and Great Britian; but singularly, it is rare among the Irish. It is rare, too, in Australia, and essentially absent in China and Japan. The American negro is very subject to rickets—it may be said that every northern negro child is more or less rachitic. On the other hand, the native African does not suffer from the disease.

It is these peculiar characteristics in geographical and racial distribution that obscures to a degree the etiology of the disease. The common and doubtless correct opinion at present ascribes it to mal-nutrition in the broadest sense of the term. Hence any condition that produces mal-nutrition may be causative of rickets. This includes not only improper and insufficient food (which probably is the greatest agent in its production), foul air, and general unhygenic surroundings, but also congenital weaknesses and cachexias, stomachic and intestinal maladies, and all wasting diseases.

The view of Parrot, that rickets is always a manifestation of congenital syphilis is untenable. Syphilis, it is true, may cause rickets by producing the state of mal-nutrition favorable to the development of the disease, but it has no specific influence. Vogel's opinion, that the disease always is caused by impure air is also entirely too restricted. Microli, of Naples, claims that the disease is due to pyogenic organisms, and that he has the staphylococcus and the streptococcus in rachitic bone tissue. Chambier, of Tours, believes it to be due to a specific germ, and that it is contagious and endemic. It is impossible to reconcile these views to the universally observed facts of the disease.

There is another erroneous opinion extant concerning the social status of the rachitic child. The disease is most common among the poor, for with them the conditions that favor its advent most abound; but it is not so rare among the well-to-do as common opinion places it. Mal-nutrition and its follower rickets may and does occur in the children of all clases. The greater number of the cases occurs in large cities, particularly manufacturing centers, for obivous reasons; but it also appears occasionally in surburban and rural chiidren. I can find no reason why the Irish are exempt, for the habits and environment of this people do not differ from those of other nationalities to a degree sufficient to explain their unity. Neither do I know why the American negro should be so universally affected. Whatever may be his other sanitary sins, our colored brother always takes good care of his stomach, and is probably better fed than most others of his social status, so the commonest accepted cause of the disease, improper and insufficient food does not generally hold with him.

The absence of the disease among the Japanese is credited to the unusual cleaniness of that people, the universal nursing of the children by their mothers, and the free use of oils and fish as foods. The rarity of the disease in Australia is doubtless due, as it previously was in America, to the robust coustitutions, active out-door lives, and salubrious surroundings of the colonists. The freedom of tropical countries from the disease is attributed to the out-door life of the people. The far North derives its immunity from the sleaginous diet of the inhabitants.

While all the tissues of the body are more or less affected in rickets, it is upon the bones that the most serious and permanent injury falls. The diseased process may be briefly described as an abnormal elaboration of the cartilaginous or organic part of the bone with a delayed or absent ossification. The normal proportion of earthy to mineral parts in bone, one or two, is sometimes reversed, the organic part being twice as great as inorganic. The epiphyses of the long bones take on an unusually active cartilaginous growth which results in an enlargement at the extremities; at the same time the bone grows in thickness through the deposit of cartilaginous cells under the periosteum. The usual absorption of bony substances within the medullary canal, which is a step in the normal growth of bone, continues, till in pronounced cases all firmness is lost, and the bone may be cut with a knife with ease. Essentially the same process takes place in the flat bones. As recovery occurs the earthy or normal deposit replaces the gelatinous substance and the bone becomes firm, though it retains to some degree its unnatural shape and size. Unusual strength of limb in adult life is not impossible with infantile rickets.

The bones of the cranium are always more or less affected. The edges of these bones, which correspond to the epiphyses of the long bones, take on the cartilaginous growth, they become thickened and the fontanelles remain open. Tne cranium becomes enlarged and approximates a cubical shape from the prominence of the frontal eminences and the centers of the parietal bones. As the rachitic process advances the bones become soft (craniotabes), and in severe cases may be so deficient in firmness as to permit indentation by the fingers. The spinal column is relaxed and the child, if able to sit up, leans forward, simulating kyphosis. The scapulæ do not seem to be much affected, but the clavicle are always thickened and usually bent the deformity being an exaggeration of the normal curves. The ribs show a beading at the costo-condral junctions, the so-called "rachitic rosary." The deformity known as pigeon breast is one of the common results of rickets. The muscular action during respiration, and the atmospheric pressure, draws the softened ends of the ribs inward, producing a bilateral groove shaped like an inverted v, with its apex at the top of the sternum. The horizontal depression, Harison's groove, corresponds to the insertion of the diaphragm, and is caused by the action of that muscle.

Of equal importance is the deformity of the bony pelvis, which, in after life, in females, is a source of suffering and danger. The sacrum projects forward because of the weight of the spinal column, and the weight of the body on the femurs when stanking, and on the tuber ischii when sitting, pushes the sides of the pelvis inward so that a seciion shows a trefoil ousline instead of the normal cordate shape.

In the upper extremity the humerus is

thickened and curved at about the insertion of the deltoid muscle. The lower end of the radius is also thickened and curved. The deformity of the femur, like that of some other long bones, is usually an exaggeration of its natural curve. The rachitic tibia is bowed forward about the upper part of the lower third. The deformity is the result both of the weight of the foot as the child lies on its back, and the action of the muscles of the calf.

With these changes in the bony skelton is a relaxation of the ligaments, and a general flabbiness and want of tone in the muscles. The lungs are compressed and contracted, and the heart hypertrophied. The liver and spleen are otcasionally enlarded.

The symptoms of rickets vary with the stage of the disease. Before the appearance of the changes in the bones, the infant is peevish and cross. It lies quietly upon its back and evidently dreads to be moved. It cries out when taken up, and will often throw off the bed clothes as though the pressure of them was painful. Though emaciation is not common, there is a general feebleness noted. The head sweats profusely, often soaking the pillow. The appetite is capricious and the sleep is broken. Evidences of gastro-intestinal catarrh are present; and bronchial irritation also usually exists. Doubtless not a few cases of rickets are overlooked by the physician because the bronchial or intestinal malady masks the underlying cause of the illness.

Very soon evidences of bone involvement appear. The English and Continental writers all note the invariable and early beading of the ribs. In my experience the rachitic rosary is not so constantly present, the first sign of bone disease appearing in the radius and tibia. In this country, at least, craniotabes is one of the infrequent conditions.

The same may be said of the neuroses which accompany rickets. While it is probably true that rickety children are more apt to have general convulsions than healthy ones, I believe the liability is greatly exaggerated, the proportion who suffer is small, and in these the spasm may usually be attributed to gastro-intestinal irritation and the absorption of toxines. Neither have I found that dangerous neurotic complication, laryngismus stridulus; in fact, the only cases of this spasm I have seen were in children in which rickets did not exist. It must be that craniotabes, general convulsions, and laryngismus stridulus, only appear in advanced cases, and these are not at all common in America.

One of the invariable symptoms is delayed dentition. The teeth are slow in making their appearance; but, as Carpenter has pointed out, when they do come, they are not imperfect and prone to early decay as is commonly stated, but are usually sound and regular.

The protuberance of the abdomen, and the detection of the lower border of the liver lower down than normal, has led to a common but erroneous opinion that the liver is always enlarged. This organ is affected in but a small proportion of cases. The contraction of the chest pushes the liver lower down in the abdomen, and the general lack of muscular tonicity favors its ready descent. The protuberant belly is also due to the flabby muscles, and to the presence of gas in the intestines. The production of gas favored by the intestinal indigestion; and its retention is due to the feeble and relaxed muscular coat of the bowel.

Presuming the cause of rickets to be mal-nutrition, the indications for both its prevention and its cure are evident. Pure air, cleanliness, and especially proper food, are essential. Most cases are due to defective diet, and the defect is usually a lack of fat in the food. If the child is nursed at the breast, the mother's milk will be found to be lacking in fatty elements; if it is artificially fed, the same want will be demonstrable.

Of medicinal agents, cod liver oil holds the first place. When it cannot be borne by the stomach, it may be used by inunction with the utmost satisfaction. Indeed, the rubbing and massage incident to this use of the oil is of distinct value. Olive oil or cocoa butter may be substituted for the cod liver oil in inunction, and in my experience these have been equally of value. Kassovitz claims a specific power for phosphorus, which he gives in doses of about 1-125th of a grain dissolved in olive oil.

The correction of deformities in after life is often feasible by operative measures, but these should be deferred as long as possible, for there is a constant tendency during growth towards natural correction.

THE TREATMENT OF CHOREA.

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I propose to limit myself in this paper exclusively to the treatment of the disease maned in the title, avoiding its history, its etiology, pathgology, etc.

I shall also limit myself largely to what my own experience has taught me is the most rational and successful treatment rather than to touch upon the classical treatment of the textbook.

Regardless of the origin of the disease, there must be three features to the treatment, viz.—a medicinal, a mental and a moral treatment. Let me say further that the last two factors are fully as essential as the first, and very often the reason why an utter faliure in treatment has been the opprobrium of the profession is the failure of the physician to act upon this fact.

The subjects of this disease are almost invariably extremely sensitive persons, and especially regarding this particular disease. They often regard it more as some weakness than as a pathological condition, and I am not sure but they are sometimes quite right.

Complete isolation for a time, and more particularly in the case of children, should be followed, and in conjunction with this, absolute and continued rest in bed is strictly essential.

I am aware that it is often difficult to make this practicable, particularly in an active, nervous child. And yet with an attendant possessing proper tact—and none other should have the care of such patients—this is more easily accomplished than would at first seem possible.

If the mother, or some other near relative, is a person of discretion, prudence and firmmess they are the most proper persons to care for these cases; otherwise they had best be trusted to a trained nurse, though the nurse be a total stranger.

The patients room should be a large one and susceptible of thorough ventilation. It should also be removed as far as possible from the noise, whether it be from the rest of the house, of from the street.

The childs mind should be diverted and occupied with slight pastimes part of the time while in bed. And yet even here a proper discretion should be exercised, and the recreation graded to correspond with the strength of the patient. Of course a great latitude must be exercised in the different cases, and here is where comes in the tact, judgment and good sense of the attending nurse.

If the disease is ever referred to before the patient at all, it should be made light of as something of minor importance and likely to be of a comparatively transitory character. I often speak of the disease as being rheumatism when compelled to refer to it before the patient.

The utmost kindness should at all times be extended to these patients, and yet the most absolute firmness is fully as essential.

I wish here to mention two very great essentials in the treatment, viz.—rest, including plenty of sound sleep, and an abundance of the most nutritious food properly prepared. A proper balance should be observed between the proteids fats and carbo-hydrates, always avoiding food of too bulky a character.

The bowels should be kept regular, and if nature needs aid in this direction, I prefer enema to laxatives, though occasionally clearing out the bowels with a moderate dose of calomel is beneficial.

The medicinal treatment proper may in the great majority of cases be confined to a very few remedies.

Arsenic, strychnine, the preparations of iron, possibly the Bromides occasionally, though rarely, Fl. Ext. Cinicifuga, these are the principal remedies.

Ether spray to the spine I have found very beneficial, and I have invariably practiced using it once a day, particularly in the early stages of the treatment.

Where the disease localizes itself in a few nerve and muscles, I have occasionally found galvanism beneficial.

In giving arsenic I usually begin with three drops of Fowler's solution three times a day, increasing the dose one drop each day until puffiness of the eyelid, or suffusion of the conjunctiva is obtained,

then dropping back to the original dose of three drops and repeating the process of increase until the physiological symptoms are again obtained.

When this preparation has a tendency to disagree with the stomach I anticipate the dose with from five to fifteen grains of Bismuth Submitrate.

In chronic cases, or in cases that have had several relapses, I have obtained the best results from Strychnine, commencing with it in small doses and increasing until its physiological effect is produced, as is the case with Arsenic.

If there is a tendency to anaemia, I give Dialyzed Iron in ten drop doses an hour after meals.

When there is a tendency to great cardiac activity I combine enough Iodide of Potassium with the iron so that the patient gets from one to two grains of the Iodide with each dose.

I have used the Arsenite of Iron in two or three chronic cases with the best results.

The following is the formula used:—

Ferri Assenite.....qr. 3ss.
HCh.....gs.
Sqr, Spi.....gs. ad. 3iv.
S.
Teaspoonful after meals.

In cases where the disease has resulted from a previously shattered or exhausted condition of the nervous system and in some cases associated with rheumatism Fl. Ext. Cinicifuga has proved beneficial with me.

I give from three to fifteen drops four times a day.

In a very few cases that seemed to have a rheumatic origin, or that seemed to be associated with a rheumatic element I have given Salicylate of Soda, Cinicifuga, Bryomia or Rhus Tox, as they seemed to indicate.

I know of no disease that promises better results from treatment, but let me assure you that if you expect these results you must make the environments of your patient such as will render them possible.

DEATH UNDER ANESTHESIA.

R. W. STEWART, M.D., PITTSBURG, PA.

The patient whose death from anesthesia I desire to report had been admitted to the medical department of the Mercy Hospital for treatment for empyema. He was aspirated. but subsequently transferred to the surgical department and turned over to my care. I decided on a resection of the ribs and drainage of the chest. The patient was about forty-five years of age, rather weak, pulse, 120, but as far as I could ascertain there was no organic disease of the heart. Owing to the circumstances of the case I took some extra precautions. For instance, I asked the patient to allow me to operate without an anesthetic. His consent not being obtained I had him anesthetized in the operating-room with chloroform, using the mask for the purpose. The patient was under my observation all of the time, and also under the observation of four or five others. He took kindly to the anesthetic for about two minutes, when suddenly his respiration and pulse ceased, and he assumed a cadaveric hue. (The face was of an ashy color.) It seemed that both heart and lungs stopped together. Although closely watched, it was impossible to say which stopped first. Every effort was made to resuscitate him. Artificial respiration was immediately begun, but all efforts were useless. The man never gave a single evidence of life.

In this case I do not think any line of treatment could have prevented death. I have seen many alarming symptoms occur during the administration of chloroform. I have frequently seen the respiration stop, and the pulse apparently stop; but artificial respirations and other resuscitating measures always resulted in evidences of returning life. The patients were always resuscitated, but all efforts were futile in this case. He died instantaneously—died before he was completely under the anesthetic, and before the

operation had begun. I used chloroform for the reason that I considered it the safer anesthetic where the lungs are involved.

I would like to draw attention to, and ask for the experience of others, in regard to alarming symptoms from anesthesia during dilatation of the sphincter ani. I have more dread of this than any other operation. It has never been my lot to lose a case but I have often seen alarming symptoms connected with it.

Pernicious an Aemia at the Age of Twenty-one.

Pernicious anæmia is not often met with during the first twenty-five years of life, and a case observed by Dr. W. Growers, of London, is therefore worthy of mention. The patient, a young man aged 21 years, seen February 19, presented the appearance of extreme chlorosis, the skin having the characteristic tint, the gums and conjectivæ being very pale. He was feeble and readly rendered short of breath. The condition had come on gradually during the previous six months, before which time the patient had seemed in good health, though he had been delicate as a young child. The percentage of hæmoglobin was but a little over 30, and of red corpuscles only 25 per cent. Examination of the eyes showed numerous flamed-shaped hæmorrhages in each retina, and one or two, of more irregular shape, near the disc. Hæmorrhages had occurred a month previously. In spite of careful treatment the patient steadily failed. There was some elevation of temperature for a few days, and pyrexia returned on March 19th, when a large hæmorrhage occurred in the right eye. Vomiting set in, and the patient died on March 21st.

Such a case, says Dr. Gowers, lends itself to the current tendency to associate all sorts of diseases with specific organisms; but another hypothesis deserves consideration, viz., the failure of tissues soon after they complete their development, not unknown in other structures—an inherent defect of vital endurance on the part of the blood-making tissues.—*British Medical Journal.*

Ichthyol in Inflammatory Conditions of the Skin.

Dr. Geo. F. Maddock (B'klyn Med. Jan.) In a paper read before the Brooklyn Dermatological and Genito-Urinary Society, the author reports upon several cases of erysipelas, cellulitis frost-bite, one of balanitis, and a number of other severe inflammatory conditions of the skin, in which ichthyol was used with decided benefit.

The ichthyol was applied in 5 to 40 per cent. ointments, according to the degree of inflammation; the greater the percentage of ichthyol employed.

It is reported that in most cases a cure was effected in from three to seven days. The case of balanitis complicating an acute urethritis is worthy of special notice. A plaster to cover entire prepuce and glans was made of a 20-per-cent. ichthyol ointment, and in four days the parts had returned to a normal condition.

In all instances of superficial ulceration, attended with marked inflammation of the surrounding tissues, as also in all cases of erysipelas. Dr. Maddock found the application of ichthyol to yield uniformly good and prompt results.

The Quinine Tree.

It has been discovered that the famous tree from the bark of which quinine is obtained furnishes no quinine except in malarial regions. If a trees is planted in a malarial district it will produce quinine; if it is planted in a non-malarial district it will not produce quinine. It is therefore claimed that quinine is a malarial poison, dawn from the soil and stored up by this wonderful tree.—*Lancet Clinic.*

According to the *British Medical Journal*, a Russian physician relates four cases of acute letanut treated by choloform inhalations which were repeated from one to three times a day, the daily dose of the drug varying from two to four drachms. In addition, hot baths and subcutaneous injections of morphine were occasionally employed. Three of the patients recovered; one succumbed from supervening catarrhal pneumonia on the seventeenth day of the primary disease. In all the cases the inhalations induced muscular relaxation, while the breathing became deep and regular, and the pulse slower and slower. The patients could be fed during the early stage of the narcosis, which also secured a quiet sleep o several hours' duration.

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SATURDAY, AUGUST 31, 1895.

EDITORIAL.

NOTED IN THE EXPERIENCE OF AN ANESTHETIZER.

These notes are noted offered as a formal discussion of the subject of anesthesia. They merely recount some of the conclusions reached through observation and experiment, and detail some of the practical points proved of the greatest value by a considerable experience in the administration of anesthetics. No claim is made of original discovery or of unique invention. Ideas were accepted from any source, and those here recited are some which commended themselves as of the most practical value to the observer. No other observers are quoted, and no authority is offered save the writer's experience with anesthetics, both as an anesthetizer and as an operator.

THE ANESTHETIC.

Save in extraordinary instances ether is to be preferred. It is safer than chloroform, and if properly handled will sustain anesthesia more evenly and satisfactorily, will produce after effects no more disagreeable and will entail far less present danger. But it requires more time and patience to secure the condition of surgical anesthesia.

Both ether and chloroform deteriorate through long exposure to light. Both are volatile. Ether vapor is lighter than air and rises. Chloroform vapor is heavier and sinks. Both are inflammable and liable to explode upon contact with an exposed flame.

Chloroform may kill suddenly by paralysis of the heart, or of the respiration, or of both.

Ether of itself never kills suddenly and without warning. If death occurs during its use, it is by asphyxia, too often, perhaps, superinduced by the carelessness or the ignorance of the administrator.

Sulphuric ether, thoroughly washed and hermetically sealed in cans, does not deteriorate. Ether that has been kept in bulk, exposed to light and atmospheric conditions for an indefinite time, as in the ordinary pharmacy, frequently proves unsatisfactory and even inert because of either deterioration or adulteration.

Many and ingenious apparatus have

been devised for the administration of ether. Some are useful; most are useless. All seek to govern the anesthesia automatically rather than to trust to the intelligence and skill of the anesthetizer. The chief claim of all is an economy of ether. The best of these inhalers, however, is inconvenient to manipulate, unwieldy to transport, and generally, when unexpectedly needed is not available or else is out of order. Most are illsuited for work outside of hospital precincts. They are not necessary for obtaining satisfactory anesthesia.

The simplest, effective methods are to be preferred. A folded, soft napkin or towel is always available. A device which will answer every purpose can be extemporized out of the ordinary wire strainer, which is hemispherical in shape and of fine-meshed netting, covered by a number of layers of gauze, cheese-cloth or any other soft, open fabric,and held by a few stitches. This will give sufficient space between the face and the fabric for the proper admixture of vapor and air; will present ample surface for rapid and complete vaporization of the ether, and will protect the skin surface from irritation by contact with the liquid. It is easily kept clean. If it become soiled, it is only a matter of throwing aside the dirty cover and replacing it with a clean one. It is simple and cheap, and can be put together in a few minutes. A few minims of ether dropped at frequent intervals upon the outside of the fabric, is rapidly volatilized and mixed with air during inspiration; while the loose edges of the cover, acting like a flap-valve, greatly facilitates the escape of respired air.

Ether which has not been thoroughly "washed" is disgusting in odor, nauseating in taste, apparently more irritating to the mucous membrane, and is prone to produce vomiting as an after effect.

The quality of the ether used is of prime importance. The quantity of ether used is of little moment. The one object is to secure and maintain the proper stage of anesthesia. This successfully done, any excess of ether is a waste of material, but is harmless to the patient.

THE ANESTHETIZER.

The anesthetizer should not, even for a moment, forget that, literallv, he holds in his hands a human life. During the anesthesia his responsibility for that life is greater than that even of the operator.

His only concern is with the administration of the anesthetic. He has no business to give heed to anything else during the performance of this duty. His duty begins with introduction to the patient when the anesthetic is to be administered, and does not end until the patient be restored to consciousness and in safety.

Never should the anesthetizer, arrayed as for some bloody sacrificial rite, appear in the presence of one awaiting operation. There is no necessity for him to strip to his shirt, roll up his sleeves, put on an apron or other paraphernalia suggestive of horrors to come. It is sufficient if he be surgically clean, and it will be much less harrowing to the patient's feelings, if he appears in the ordinary garb of civilization. He should bear himself quietly, confidently and, especially, cheerfully. Once inspire the patient with confidence and there will be no trouble in securing his co-operation and, then, by firm and repeated suggestion, determining his conduct so long as volition continues.

Briefly and quietly explain to the patient that he is to inhale the ether in order to prevent pain and to facilitate matters by inducing sleep; that there is no danger attached to the ether; that the greatest care and discretion will be exercised; that, probably, he will dislike the taste and smell of the drug at the outset, but that it cannot do any harm and the dislike will speedily disappear; that, occasionally, after ether has been inhaled a

little while, there comes a sensation as of choking or smothering; if such should occur with him, not to fear but to breathe the more rapidly and deeply and the distress will speedily pass away; thereafter, the sensation will not be unpleasant, but rather the contrary, and he will quietly go to sleep. Instruct him to take full, deep inspirations and then to blow out forcibly against the inhaler. The more rapidly and deeply the patient respires, the more speedily and comfortably will the anesthesia be secured.

The anesthetizer must give to the patient every consideration dictated by humanity or suggested by the customs of polite society. Levity is contemptible; prevarication is cowardly; ridicule is brutal. Encourage the patient, persuade, humor, and especially allay his fears. Instances are not wanting where patients have died simply from fright, even before approached with the anesthetic.

The patient who calmly and confidently follows directions, given kindly but firmly, will invariably respond the more readily to the anesthetic, will sustain unconsciousness more satisfactorily; and will recover from the anesthesia much the more rapidly and comfortably.

The patient who, in a horror of fright and resistance, is forcibly subdued and choked into insensibility, suffers inconceivable mental torture, is already profoundly shocked before the operation is commenced, and recovers consciousness in a condition most unfavorable for the immediate or remote success of the surgeons interference.

The anesthetizer must be contantly alive to the condition of the patient. Observe every indication presented. Be prepared to meet any emergency occurring in connection with or resulting from the anesthesia. Keep his eyes and ears open, and his mouth shut; heed nothing but the directions of the operator, and attend strictly to his own business.

It is not the business of the anesthetizer to supervise the preparations for operation, but he should be informed of the general conditions of the vital organs. He must, however, assure himself of some preliminaries—for instance, that artificial teeth are removed, that the bladder is emptied, that no clothing or bands constrict the body or retard the circulation, etc.—before commencing the anesthesia.

SOCIETY REPORTS.

ALLEGHENY COUNTY MEDICAL SOCIETY.

Jnne 18, 1895.

Dr. Chas. S. Shaw presented an essay on

RICKETS.

[See page 258.]

DISCUSSION.

Dr. S. W. Macfarlane: I wish to take exception to the statement that operative treatment should be deferred as long as possible. It is true that we see families in which rickets may be present and yet the family may not be markedly rachitic, and in which you will see later an amelioration of the conditions, and perhaps, finally, a comparatively straight limb. It may be said that there is a tendency for bow legs to straighten, but I do not think the same can be said of

knock-knee position upon cessation of the deformity that I wish to say a few words. Very often operative procedure is delayed as long as possible, and the patient allowed to more about until such a condition ensues that it is almost impossible to do an operation which will be all satisfactory.

Too often cases of this kind are referred to the orthopedic instrument manufacturer, and traction and splints are applied. The consequence of this procedure is that there is a forced relaxation of the external lateral ligament without a cure of the deformity. We see this in many cases which finally, come to the hospitals for the relief of aggravated forms. There is a peculiar case of knock-knee related in Treves' Surgery, which had been treated in this manner for four years. The limb could be brought straight by easy pressure, but relapsed to the knock-knee position upon cesation of the force. When straightened, there was an inch of space between the head of the tibia and the external condyle. A Macewen's operation was done, following which there was a cure. It is too often the case that patients are placed in splints until there is serious mischief done, when operative measures must be taken, necessitating a compound fracture. True, by antiseptic measures we can seal these up and may have but little or no trouble. At other times, however, suppuration occurs. Too great care cannot be exercised to place these patients under the care of persons who pay special attention to such diseases; or, if not convenient or possible to place them under the care of the specialist, at least his advice should be asked that the patient may not be permanently crippled.

Dr. J. M. Duff: Will you kindly explain the technique of Macewen's operation?

Dr. J. W. Macfarlane: Very briefly the technique of the operation consists in dividing the femur just above the epiphysis with a chisel.

Ogston's operation consists in sawing obliquely through the internal condyle, this being accomplished the limb is brought in the straight position.

Reeve's operation is essentially the same as Ogston's, except that the work is done with a chisel.

Macewen's operation is perhaps the safest of the three, as the knee joint is not opened.

DR. S. L. MCOURDY:—The author of the paper has so thoroughly considered the subject that but little is left to be said. I think, however, that it would be proper to emphasize the bacterial origin of rickets.

Dr. Stefano Mercoli carried on a series of experiments and demonstrated to his entire satisfaction that a staphylococcus was found in every case of rickets, but whether these micro-organisms are the actual cause of the disease, or simply coincident, is a question. This has also been demonstrated by other investigators. Dr. Lee, of Philadelphia, goes so far as to say that rickets is due to the introduction of malted milks or dry milks, and goes on to demonstrate the fact that cow's milk or condensed milk is to be preferred.

So far as the mechanical treatment of rickets, and the consequent deformities, is concerned, it depends almost entirely upon the stage in which we find the patient; the stage of congestion, the stage of softening, or the stage of sclerosis. The stage of congestion is known as the acute stage in Germany and scorbutic in this country. During the stage of softening mechanical treatment should be used. The general rule to follow is to use mechanical treatment up to the age of four years. This of course varies somewhat according to the circumstances, and we have always to take into consideration the condition of the bone. If we find it in the stage of softening, mechanical treatment is indicated. When an operation is indicated subcutaneous osteotomy should be done. I have seen the operation of Macewen performed a number of times with resultant perfect union and straight limb. I remember one operation in which eight osteotomies were done at one sitting. The temperature never went above one hundred degrees. In fifteen days the plaster cast was removed. There had been no suppuration. All the osteotomies united perfectly and the patient recovered with good limbs.

DR. R. H. GRUBE:—I was greatly interested by the paper which Dr. Shaw read and have but little to say, except with reference to one point; namely, the presence of the rachitic rosary. I consider this a most valuable sign, and in my cases have always been aided in diagnosis by its presence. You say that you see

many deformed negro children, but I ask how many deformed adults of the colored race do you see? I have studied this point with considerable interest, and I must say that an adult darkey with extreme bow legs or knock-knees is very rare, and yet the deformities of a rachitic childhood were corrected by nature entirely unassisted. Except in extreme cases I do not see any reason for surgical interference.

DR. J. B. MURDOCH:—Like the other gentlemen who have spoken this evening I have been very much interested in the paper read by Dr. Shaw. There is one point which I would like to emphasize, and that is the apparent great susceptibility of the negro race to rickets. It occurs to me that there is a great similarity with reference to this point between rachitic disease among the colored people and the same disease among lower animals transferred by force from their native climes and confined. When wild animals are confined in menageries, it is a very common occurence for them to become rachitic. It has been said by the reader of the paper that the native African, in his own land, is never troubled with rickets. Now I believe the case is practically the same in the African as in the case of the lower animals. The wild animal is captured, confined, given a different food from that to which it is accustomed, transferred to a totally different climate and brought up under very different conditions than would obtain in its native wilds. So it is with the African. Taken by force from his native country, rudley transplanted on a foreign soil, living under far different atmospheric conditions, and subsisting on a totally different diet, he becomes rachitic, the same as the lower animals to which reference has just been made. It takes many generations for any race to become fully adapted to a new environment.

The portion of Dr. Shaw's paper relating to the geographical features of rickets was very interesting to me. It is very common in Scotland and England, and many rickety children can be seen on the streets of Glasgow and Edinburgh. It was my privilege to see Dr. Macewen perform the operation spoken of by Dr. Macfarlane, a great many times at the Glasgow Infirmary. Such operations are very common there.

Some years ago in England it was stated by Sir William Jenner that rickets was caused by a farinaceous diet. In Great Britain and Continental Europe animal food is much less used than in this country. In Scotland the children are brought up chiefly on oats—oatmeal. I believe that mankind, and especially the younger portion of our race, are essentially carniverous, and require a large proportion of animal food in the daily diet; and that infants, especially, receive too much farinaceous food. This statement supports the theory of mal-nutrition. I believe that children are not sufficiently nourished. They require a mixed diet, with a large proportion of animal ingredients, and they do not recieve it. They are confined, in many instances, to a farinaceous diet, and because it is solely farinaceous I believe it to be improper.

In regard to the treatment of these cases I agree with the reader of the paper. No operative treatment should be countenanced at first—no osteotomy. The treatment should be mechanical. Our own Dr. Lewis A. Sayre has done much for the advancement in mechanical treatment of these diseases. If a child is under the care of an intelligent surgeon, and receives judicious treatment, I believe that the operative treatment will rarely be necessary. Mechanical treatment by means of splints and other appliances, combined with proper massage, is the only local treatment required.

The only time an operation is indicated is after the bones have become hard, after the disease is practically cured so far as the rickets is concerned. The operation is then done to correct an otherwise permanent deformity.

DR. T. D. DAVIS:—It was my misfortune not to hear all of the paper which was read this evening. The portion which I did hear interested me greatly. There were two points which I should like to emphasize, although they were probably spoken of before I arrived.

One is the early recognition of this disease. As has probably been stated, rickets is a disease of children, generally manifested before the third year, and resulting in a deformity of the osseous system, either disfiguring them, or at least interfering with their comfort. I believe one of the earliest ways to recognize this disease is by a thorough and careful examination of the chest. The involvement of the ribs will give evidence before any other

symptom, except perhaps the marked change in the disposition of the child.

You will find a peculiar nodule where the ribs join the cartilage. This often results in a malformed chest wall and, finally, in after years, in contracted lungs, which are very susceptible to disease. The other point is the contraction of the pelvis. A marked contraction may take place before the limbs show any bone involvement at all. It doubtless is true that the comfort and happiness of many a future mother is interfered with before she is three years of age, by a disease which we are prone to consider a trivial, or at least not a very dangerous one, because the prognosis is generally favorable. For this reason I think no effort should be neglected to make the earliest diagnosis possible.

I do not know that the exact cause of rickets has ever been satisfactorily determined, but the evidence is strongly in favor of the stand taken by the reader of the paper—that it is a mal-nutrition. I do not consider it a constitutional disease in the sense of heredity. In some families we find both rachitic children, and robust, healthy ones. It has been said that the mal-nutrition results from a farinaceous diet. As a rule, the colored race use farinaceous food more extensively than any other nationality. Corn is a very prominent factor in their diet, like the oatmeal of the Scotch spoken of by Dr. Murdoch. The absence of proper animal food in these cases was spoken of by the reader of the paper, who also referred to what I consider the best of remedies, cod liver oil.

This disease occurs in the majority of cases in children under three years of age, and it therefore behooves us to look carefully after the diet of the young children who may be under our care. I have seen a number of cases of rickets among wealthy families, where the diet was chiefly some proprietary food, of which there are so many. The children get used to the sweetness of these preparations and will hardly be induced to take any other kind of nourishment. The diet of infants is a very important charge to the physician, and I cannot emphasize it too strongly. For internal remedies I use cod liver oil, and the pyro-phosphate of iron or the phosphate of soda. These can be dispensed so that the children will take them very readily and with great benefit.

DR. O. KNIFFLER: I had the pleasure of studying in the Children's Department of the University of Bonn under Professor Ungar, and I have seen many cases of rickets. I think, in my opinion at least, that Dr. Murdoch has struck the right point in the etiology of rickets; namely farinaceous diet. There is a great difference in the diet of the European and American families. It is a fact, also, that more infants are artificially fed in Europe than in America. The conditions of the laboring classes are much better in this country. In Germany and other foreign countries mothers are forced to work and infants are brought up on artificial food or cow's milk.

I did not hear Dr. Shaw make a distinction between the acute and chronic form of the disease, but he may have done so before I arrived. I do not know if he mentioned it. There is an acute form which starts with fever, showing symptoms simllar to scurvy. I do not know the full extent of the investigation in this subject, but one of my teachers claimed that rickets was produced by a combination of mal-nutrition and a certain microbe of rickets not yet discovered, which started the disease process.

The treatment in Germany consists mainly in phosphorus. We generally follow the treatment of Kassovitz, and use phosphorus in connection with cod liver oil. In cases when this cannot be borne the phosphorus is given in a sort of chocolate which contains a good deal of oil. So far as the surgical treatment is concerned, I have never seen an operative procedure in Germany done before the rickety process had been healed. The children are at once put to bed and the treatment is mechanical and medicinal.

DR. C. C. HERSMAN: I have heard heredity spoken of, but I do not think it has much to do with these cases; not nearly so much so, at least, as in many other diseases. We cannot say that it is the vicious atmosphere in which we live, for if this were the cause the disease would be much more common. We cannot say that the cause lies wholly in the evils of a farinaceous diet, for if this were so the disease would certainly be common among the Chinese, as they subsist largely upon rice, which contains a very considerable proportion of starch. Our best

writers on the subject seem to think that we are not exactly within the grasp of the cause of rickets. It may be the resultant of quite a number of causes.

It has been said that possibly the first symptoms are to be found in the chest, the symptom known as the rachitic rosary. I am inclined to differ from that statement. I think one of the symptoms is the shape of the cranium, in which the head seems to be large and the face small; but the head, if measured, will be found to be smaller than normal, the thin face making it appear large. I look to the head for the first symptom, and possibly to the chest for the second, and then for the other well-kuown symptoms as they come along.

In the medicinal treatment of rickets a combination of phosphorus and cod liver oil has been spoken of, as being in very common use in Germany and also in this country. This is an unstable compound, and when used at all should be freshly prepared. The colored race has been mentioned. I was brought up where the colored people were to be found by hundreds and thousands and I have seen very little deformity among adult negroes. This may be because the morality among rachitic colored children is very great.

I think that there is very little excuse for deformity at the present time. If the child is brought to the physician in good season the modern mechanical appliances and intelligent medicinal treatment, combined with proper diet, should prove efficacious, and the adultage of a rachitic child reached without deformity, although he will be smaller in stature than his non-rachitic brother or sister.

Dr. Adolph Kœnig: The reader of the paper has suggested inunction of cod liver oil when its internal administration is not possible. I believe the advantage of administering cod liver oil in this manner in these cases is not sufficiently recognized. The power of absortion of the skin does not receive, as a rule, the consideration which it deserves. Cocoa butter was suggested as a substitute for cod liver oil when administered by inunction. I think there are one or two fixed oils which are superior to the cocoa butter for this purpose. To my mind the best is cocoanut oil. It is much more fluid, and less likely to become rancid than cocoa butter, and I think posseses all the good properties of the cod liver oil when administered through the skin, without the disadvantage of a nauseous odor characteristic of most cod liver oil.

Dr. Charles S. Shaw: The subject of rickets is such a comprehensive one that it is impossible within the limits of an ordinary paper to touch on all the varieties of the disease, on all the theoretical causes, or on all the various plans of treatment. It seems to me one of the most important things is the early recognition of the disease. I know from personal experience that quite a large proportion of the children brought to our dispensaries are decidedly rachitic. I also know that a large proportion are not recognized as rachitic. Rickets does not figure in our dispensary and hospital reports, nearly as frequently as it should. The importance of early recognition lies in the prevention of deformity, and in my experience there is no disease which responds more satisfactorily to proper treatment. It is sometimes difficult to diagnose the acute form, and the division between the acute and chronic forms is not pronounced, as they shade into each other. I think we must look to the head for one of the first symptoms. Perhaps one of the first things you will be told when called to see a child is that "the head sweats so." I believe this to be an invariable symptom and usually the first symptom. As to the rachitic rosary, the experience of Dr. Grube is in accord with that of most of the authorities which I have consulted; but different from my own; namely, that the beading of the ribs is the first osseous symptom. In my experience, in at least 20 per cent of the cases there was no beading noticeable. On the other hand, the lower end of the tibia and the wrist were always the seats of osseous change. These situations are covered with but little skin, and a very slight change from the normal condition is easily recognized.

The treatment of cod liver oil, in my opinion, is productive of the best results. I have used phosphorus in conjunction with cod liver oil. I do not know of anyone giving it alone. Kassovitz always gives it in connection with the oil; and I think the oil, and not the phosphorus, is the essential part of the treatment.

A most important part of the treatment consists in the prevention of deformity. In the early stages, when the bone is soft,

proper posture, with occasional changes from side to side, will often be sufficient to prevent deformities of the long bones, but the chest deformity is beyond control. Deformity of the pelvis can be prevented to a great extent by the proper posture of the child upon an even and not to soft mattress. As spoken of before, the inunction of some oily liquid, and the attendant massage is exceedingly beneficial.

Dr. R. W. Stewart reported a

DEATH UNDER ANESTHESIA.

[See page 262.]

DISCUSSION.

DR. J. B. MURDOCH: It was my bad fortune to lose a patient by an assistant giving the anesthetic. It was at the West Penn Hospital, and the patient was being anesthetized in a small room adjoining the operating-room, where I was performing an operation upon another patient. I was called out to see the case referred to. There was an entire cessation of respiration and absolute absence of pulsation when I arrived. There was this difierence, however, from the case of Dr. Stewart's: While in both cases chloroform was given, in the case of my patient the complexion was livid. The whole skin and the mucous membrane of the lips was greatly congested, and I was inclined to believe from this fact that the heart had continued to beat after the respiration had ceased. The respiration ceased first, and must have been followed by several pulsations of the heart. I do not know if I am correct, but I believe where the face of the patient is of a pale, ashy color, as Dr. Stewart's was, that the syncope was preceded by heart failure and followed by a cessation of respiration; while if the complexion is livid, as in my case, the respiration ceases first, and is followed by a few pulsations before the cardiac center ceases to act. I believe that it is the generally-accepted opinion that in deaths resulting from the administration of ether, the respiration ceases first, and therefore the respiration should be watched with the greatest care, but I believe in a minority of cases the heart's action ceases first.

Now with regard to the subject of operations in the vicinity of the rectum. Some of you will remember one of the last operations performed by the distinguished surgeon, Dr. Agnew, upon a prominent politician of our State, I believe, one of our State officials. The operation was for hemorrhoids and was done at the Continental Hotel in Philadelphia. Just as the patient was getting under the influence of the anesthetic, he expired about as suddenly as Dr. Stewart's patient. I am inclined to believe that anesthesia for operations around the rectum should be conducted with extraordinary care on account of an increased susceptibility, and yet many surgeons use anesthetics recklessly in operations about the rectum. Orificial surgeons claim that the very best manner to resuscitate a person too profoundly anesthitized is to dilate the sphincter ani. I remember reading in their journal not long ago of a patient in a comatose condition resulting from anesthesia, who was promptly resuscitated by dilating the sphincter ani; so that this operation seems to be a danger, or a safeguard, which ever way you wish to use it.

DR. G. W. ALLYN: It may be a little foreign to the exact line of discussion, but I would say that I have experienced a good many anxious moments, generally after the operation had been completed. I have had several cases in which the heart had ceased to beat five, ten or fifteen minutes after the anesthetic had been withdrawn, but have always been fortunate in being enabled to resuscitate them. I recall one case where it took very vigorous and rapid measures to bring about a movement of the heart. I had used, as I generally do, the A C E mixture. This case came very near resulting fatally, and probably would have done so if I had not watched the patient very carefully after the operation. The patient had so far recovered as to talk with me and answer my questions when suddenly he became unconscious, and it was only by the most vigorous sort of work that we were able to bring about a return of consciousness. The most alarming symptoms have always occurred after the operation had been completed and the anesthetic withdrawn.

DR. R. C. CLARKE: I was unfortunate in losing a male patient, aged 35, from chloroform anesthesia six years ago. Some two weeks previously I had anesthetized the same patient for the purpose of forcibly extending the leg for contraction following arthritis. At this time no alarming symptoms developed either during or after anesthesia. The second

operation was of such a trivial nature, that I advised against the use of an anesthetic. Less than a drachm of Squibb's chloroform had been administered and the stage of excitement reached, when respiration suddenly ceased; the countenance assumed a livid color, as in Dr. Murdoch's case, but despite every means of resuscitation, including the use of a battery with poles applied over the centers of respiration, I was unable to restore him to consciousness. I think the heart beat for at least ten minutes after respiration ceased. I can advance no reason for the fatal effect of the anesthetic in this case.

Dr. J. D. Thomas: Dr. Stewart reports a death from chloroform anesthesia. Dr. Murdoch reports two deaths from chloroform anesthesia, [Dr. Murdoch: One case from ether anesthesia.] Dr. Allyn a case of severe collapse from the ACE mixture. In the hospital on the south side, with which I am connected, we have had one death from anesthesia in which the A C E mixture was administered, but we have not had any from the administration of ether alone. If the number of deaths from chloroform anesthesia is so much greater than from ether I am of the opinion that it is hardly right for us to use chloroform, nor do I believe it is right to administer morphine or atropine under the skin just before administering the anesthetic. The various anesthetics, the various mixtures, the various anodynes, the various sedatives, all have an action, one different from the other, and I do not believe it right to load down a person's system with such a variety of dangerous drugs. It has become a universal rule in the institution with which I am connected to use ether, and to use it almost always alone. There are occasional cases where a little chloroform is used at first and the anesthesia completed by ether. If a patient takes a great deal of ether without becoming unconscious I think it is safer to defer your operations until another day. I had a case of that kind, a young man of about sixteen years of age, and the ether was admisistered by an expert. He had taken a large amount, but was more obstreperous at the end than at the beginning. I deferred the operation until the next day, when I first gave him a few whiffs of chloroform, followed with ether; complete anesthesia resulted, and the operation proceeded with. I believe chloroform kills by paralyzing the respiratory center. I believe that chloroform has a greater tendency to paralyze the respiratory centers than any other anesthetic. I have dilated the spincter ani a number of times. I have generally done it under partial anesthesia. I will not do it again. It is the most dangerous period during the administration of the anesthetic.

There is one other important feature to consider, and that is the question of fright. I believe that fright has a great deal to do with deaths from this cause. About six weeks ago I had occasion to dilate for fissure of the anus, and the patient was brought into the operating-room. It is an unwise thing to bring a patient into the operating-room to anesthetize him. You are sure to add to the fright which already exists. They see the operating table; they see the instruments; they see the whole paraphernalia, and all these things add to the fright and feeling of uncertainty in the mind of the patient. In the case to which I have just referred, where I was about to operate for fissure of the anus, the patient, an Italian, was brought into the operating-room. He was terribly frightened. After taking one or two drachms of the anesthetic he absolutely refused to take any more, and offered fight. I did not insist upon his taking any more, because I felt that if we had continued, owing to his mental state, that he would have died. He had paid the hospital fee, and he had paid my fee, and I determined to operate without anesthesia. He was held by assistants. and I dilated it sufficiently.

The better plan, and the one which should invariably be followed, is to anesthetize in some room other than the operating-room; not begin operating too soon, and use ether on all occasions.

Dr. T. D. Davis:—The importance of fright in these cases was, in my mind, before Dr. Thomas spoke of it. I know of a case of this character which I do not think has ever been published, but is well worth consideration. It occurred in the practice of Dr. J. C. Reeves. The patient was a young man who had been operated on for a trivial complaint during the year, as I remember it, and had taken the anesthetic nicely. He came to the doctor to have a piece of necrosed bone removed from the tibia. The operation was to be performed in a private house. As the

young man took the anesthetic so perfectly at the previous operation, nothing untoward was anticipated at this one. The young man was cheerful, did not seem at all apprehensive, conversed with the doctor and his assistants, and lay down on the operating-table. The doctor prepared his instruments and then took up the sponge which he generally used for giving the anesthetic, and started toward the operating-table. Before he had taken a step he noticed that the young man was dead. The patient was not at all in a precarious state of health, and did not seem to be very much run down at the time. He died from fright, before the cork had been removed from the bottle. Suppose he had taken one inhalation under these circumstances? The anesthetic undoubtedly would have been blamed for the death. There is a nervous element in these cases which does not receive sufficient recognition; a nervous element that we have not yet fathomed. I believe that all anesthetics are dangerous.

There is one other thing I fear in these cases, and that is the anesthetic expert. The man who, in his own conceit, thinks he knows it all. To administer the anesthetic I want a man who is afraid of it, who is constantly on the alert. I do not care what the success of the expert has been in the past, nor the years of experience which he may have had, if he goes ahead in a confident, careless way I do want him. I fear him more than I do the anesthetic. I think in the average use of anesthetics, the responsibility is divided among too many assistants—anywhere from two to five are around his head, feeling his pulse, examining his eyes, etc. This is a case of too many cooks spoiling the broth, I think the responsibility should be confined to one man, and he should give it his strict, exclusive attention, without interruption.

Not only do I consider all anesthetics dangerous, but I consider chloroform the most dangerous of all, at least in this country. That is, the proportion of deaths from chloroform anesthesia is greater in America than it is in the old world. Why this should be I do not know.

The A C E mixture has been spoken of. It consists of one part of alcohol, two of chloroform, and three of ether. There are fewer deaths on record from the administration of this mixture than from either chloroform or ether. It is not exactly a mixture, but is almost a new chemical compound. It is not a mixture of three things which can be separated, but is a solution, the alcohol dissolving the chloroform and ether. The mixture is absolutely inseparable, except by difficult chemical processes. My authority for this is the editor of the Chemist and Druggist, London, who has conducted a series of experiments on this point. It is not, as Dr. Thomas has inferred, a hodgepodge. It becomes a new mixture; it is a new mixture; it is a new substance. It contains the best elements of the two anesthetics, and possibly the stimulating effects of the alcohol. But I do not speak even of this mixture, although I have used it almost exclusively for twenty-five years, as being safe, for I do not believe that any anesthetic is safe.

Dr. J. W. Phillips: I was unfortunate in losing a case through the administration of the A C E mixture. One of the young doctors of the last class which graduated from the West Penn Medical College, a very careful young man, gave the anesthetic. The patient was a child about three years of age. It was brought to the table crying. We tried to stop its crying before starting, but as it continued, the doctor proceeded to give the anesthetic.

The operation was for a small blood tumor on the forehead. I had assisted Dr. Thomas in an operation of this kind and I followed his procedure—removal by the cautery. The child had stood the operation very well and I turned around to get the dressing. The assistant giving the anesthetic, turned around to set the bottle which contained it on the table, thereby neglecting the patient. When we both turned around towards the child it was in a narcosed condition, and had it not been for quick action, and very rapid work, the child would have died. It seemed over fifteen minutes, but I hardly think it was quite that long, befoee it was resuscitated.

I felt sure that the grave symptoms in this case were due to excitement or fright. The little one was crying when brought into the room, and continued to cry until after the anesthetic was administered, but it did not show any ill effects of the drug until after the operation, which probably lasted ten or fifteen minutes.

DR. S. L. MCCURDY:—I do not think it would be proper to close this discussion without calling attention to the fact that, in the experience of gentlemen present, all the deaths resulting from the administration of chloroform, occurred early in the administration of the drug. There are some who claim that the chief danger from chloroform lies in administering it in small quantities. In all deaths from chloroform of which we have read, they have occurred early in the administration of the anesthetic. An article recently appeared in the *British Medical Journal* stating that there had never been a death from chloroform in Scotland. The Scotch believe in giving large quantities of the drug from the very beginning.

DR. C. C. HERSMAN:—The cases reported all died early in the administration of the anesthetic. I think if the anesthetizer were more careful to give the patient plenty of air, there would be fewer accidents. I think that every death from chloroform occurs before the patient is entirely under the influence of the anesthetic. It is either just before or during the spasmodic stage, and very often I fear carelessness is the cause. It is nearly always during the stage of excitement that we have these alarming symptoms. I remember two cases in the South Side Hospital in which the patients were doing very well when the anesthetizer changed the anesthetic without the knowledge of the operator. The change was administered freely. The consequences were very alarming, although the patients were both resuscitated. One of them gave no sign of life until the sphincter ani was dilated, when he was resusciated, and the operation completed. I consider the hypodermic injection of morphine or atropine prior to the anesthetic a most dangerous procedure. So far as expert anesthetizers are concerned, I believe some of them to be a very dangerous adjunct to an operation. When they become experts some of them become dangerous. I think that in giving chloroform we should be exceedingly careful and give more air.

DR. J. M. DUFF:—I wish to say a word regarding the case at the South Side Hospital spoken of by Dr. Thomas. I do not think it is a proper case to be reported as a case of death from anesthesia. I happened to be in the operating room at the time the patient was brought in for operation for anal fistula. I never saw a worse scared man in my life. I am confident that he did not get more than a drachm or a drachm and a half of the anesthetic. He died within a few moments after the first inhalation. I believe he died of fright. His heart stopped and although artificial respiration was kept up he never revived. This is one of the cases of anal disease, but the operation had not begun before the man was dead.

DR. JOSEPH E. WILLETTS:—I have given anesthetiss a sufficient number of times to consider myself capable, and yet I never administer it without feeling a certain amount of dread, and never feel entirely safe until my patient has left the office. I do not think the addition of the alcohol in the A C E mixture makes it any safer; the alcohol and ether being more volatile than the chloroform, the operator never knows the amount, or proportion, the patient is actually receiving. If, however, it should be true that the three together form a new and inseperable compound, the evaporation must be equal.

During my connection with a New York institution I administered ether from six to eight times daily. Never were any alarming symptoms presented, except the more common one, the cyanosis, which disappeared on the withdrawal of the cone. But little attention wrs paid to the chest sounds, it being the exception rather than the rule to make even an examination.

DR. J. H. HOFFMAN: I would say in regard to my choice of an anesthetic that I am something of a mugwump. My preference is for ether, but I use chloroform if I feel like it. Like the man who professed the principles of total abstinence but took a drink if he felt like it, I use chloroform is I think ether, for any reason contra-indicated. Prof. H. C. Wood prejudiced me against the A C E mixture. His teachings were in accordance with the views which Dr. Thomas expressed this evening. I do not see anything to be gained by the combination of two or more anesthetics. I might say that I have had two or three bad frights from administering chloroform. I think the administration of chloroform by means of a handkerchief is a very haphazard way. It should be administered with an Esmarch muzzle. I have used this a number of times and have never seen any serious symptoms in these cases. There is one point which I

did not hear mentioned. I think, as do a good many of our teachers, H. C. Wood among the number, that the shock of pain adds to the dangers of the narcosis. I have on a number of occasions seen surgeons commence to operate before I was satisfied that the patient was sufficiently anesthetized. I do not think any operation should be commenced when the patient is simply helpless, and not completely anesthetized.

Dr. R. W. Stewart:—I would like to say a word in conclusion regarding the statistics in these cases. I think the records show that there is one death in three thousand due to chloroform anesthesia and one death in ten thousand from ether. From a statistical point of view, then the ether is safer and therefore more desirable. But in cases where the lungs are diseased I prefer to use chloroform, as the ether produces a congestion of the bronchial mucous membrane. I do not think ether should be used when a patient is affected with pulmonary disorders.

Dr. Clark mentioned the use of a battery in an attempt to resusciate a case of collapse. He stated that although the heart beat for some time, that the respiration never returned. I think the use of the electric battery in these cases is a waste of time. Its use has been almost entirely abandoned. A great deal has been said against the expert anesthstizer. For my part I prefer the expert. I do not think that a man who is careless is an expert. I want an anesthetist who knows the danger of his calling, and who thoroughly knows his business. I do not want a novice who is more interested in watching the operation, than he is in attending to his duties. The latter are the men I am afraid of. I am indebted to Dr. Davis for the information that the A C E mixture is in reality a definite chemical compound. I have always considered it simply as a mixture. But I think this fact, if true. should make us all the more cautious in its use, and in its preparation. Suppose that we do not obtain a mixture containing these exact proportions of one part of alcohol, two parts of chloroform, and three parts of ether. There is then a surplus of one of the drugs, and we do not have the definite chemical compound. The surplus ether, or chloroform, or alcohol, will be free to act independently of the other ingredients. I formerly was very partial to this mixture or compound, but for no very clear reason I have abandoned it.

The Poultice and Bacteria.

The poultice has recently been examined bacteriologically by Dr. R. W. Lovell, and he happily finds that it is reasonably sterile and nonpathogenetic. It would be hard, indeed, if the soulless searches after microbes were to lay the ban upon this most comforting and useful domestic remedy. How few mortals pass through this vale of tears without the occasional solace of hot pultaceous flaxseed. As long as there are boils there will be poultices to solicit the streptococci into gentler activity.—*New York Medical Record.*

Care of the Mouth in Fever Patients.

Dr. Rosenbach, a German physician, makes some timely suggestions upon this subject. He strongly insists that the condition of the buccal cavity should not be overlooked in cases of continued sickness, as is often done. Many complications of infective origin may be prevented by strict cleanliness of the mouth. The mouth should be thoroughly rinsed several times a day with tepid water, adding thereto a little tincture of myrrh, eaude-Cologne, or a weak solution of boracic.

Fuber, of Hamburg, who suffered a great deal from hay fever during last summer, noticed that in winter a coryza was accompanied with hot ears, which regained their normal temperature when the discharge from the nose was established. He tried a reverse order of things on the hay fever, and rubbed his ears until they became red and hot. It is now the third summer he has led an endurable existence. As soon as there is the least amount of fullness in the nose, they ears are noticeably pale. A thorough rubbing of the ears has always succeeded in freeing the nasal mucous membrane from congestion. The rubbing must be thorough and repeated.—*Med. Rep. Calcutta.*

To prevent the unpleasant constitutional symptoms following *follicular tonsilitis*, Dr. Hoag, of Chicago, recommends that the openings into the tonsils should first be cleared out and peroxide of hydrogen afterwards applied freely.—*Canada Lancet.*

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

Unfavorable Report on Antitoxin.

After a thorough study in various hospitals of Berlin of the use of Behring's diphtheria serum, Passed Assistant Surgeon F. J. B. Cordeiro, U. S. N., in a report to the Surgeon-General of the Navy, concludes that so far proof is lacking of the value of antitoxin in the treatment of diphtheria. Dr. Corderoi adopts the following opinions of Kassowitz: (1) A large number of children treated with both small and large immunizing doses have within a few weeks acquired diphtheria, and some of them have died of it. We do not possess a single scientific proof that a case of diphtheria was ever prevented by the immunizing process. (2) Children who during a first sickness have been treated with large doses of serum have a short time after acquired dihtheria anew. They were not rendered immune either by their sickness or the largest doses of the antitoxin. (3) In a large number of cases children have been treated on the first or second day of their illness with the fullest doses of the antitoxin and have died. (4) It is certain that a large part of those who have died notwithstanding the serum treatment did not die from the effects of a mixed infection, but directly from the specific effects of the Loffler bacillus. (5) Heart and other post-diphtheritic paralyses are also seen in early and fully treated cases, and they occur as often as they did before the serum treatment. (6) Of a fever fall by crisis in the first twenty-four hours, and of a pronounced antipyretic effect of the serum, most observers have seen nothing or next nothing. (7) The separation of the membranes follows in the cases that run a favorable course in the customary manner. But often there is an extension of the local process, and a renewal of the already separated membranes during and after the serum treatment.

The burden of proof lies with Behring and co-workers. The world will eagerly and only too willingly receive this proof. We know that the former extravagant promises are out of the question, but we should be grateful to have it demonstrated that the serum can reduce the mortality by even one per cent. As yet we have not the slighest basis on which to found an expectation that fewer children will die in the future of this disease on account of the serum treatment.—*Medical Record.*

Cardiac Irregularity Consequent on Obesity.

(*Ueber Herzirregularitaten in Folge von Fettleibigkeit*).—Dr. Kisch (*Berl. klin. Wochenschr.*—At the recent Balneological Congress in Berlin, Kisch of Marienbad read a paper on this subject. He began by stating that no functional disturbance in the organism occasioned the individual so much anxiety apprehension as when the regular action of the heart got disturbed. The educated man is so accustomed from infancy upwards to the regular work of his heart, and is so convinced of its supreme importance, that any disturbance of it readily arouses in him the fear that the heart may refuse completely its office. Kisch has seen medical men who had observed cardiac irregularity in themselves plunged thereby into deep mental depression. There is no reason for this; for, as the author pointed out, irregularity may awaken apprehension in grave disease of circulatory or respiratory apparatus, while, on the other hand, it possesses only trifling significance. The author discussed exhaustively from his own experience the cardiac arhythmia of obese persons. Slight irregularity, intermittence where, after a series of regular beats, a pause occurs, is observed in youthful patients with slight heart trouble, especially in young girls who exhibit the anæmic form of lipomatosis. Actual irregularity, in which regular beats and pulse pauses alternate, is seen chiefly in fat people who have already passed their fiftieth year, and in whom other symptsms of the heart trouble are present. Complete irregularity, in which pulse waves alternating in tension and size regularly follow one another, is seen in cases of obesity with marked heart weakness in which there is dyspnœa, angina pectoris, pronounced backward pressure in the venous system, with œdema and dropsy. Kisch holds, in contradistinction to French authors, that simple cardiac intermittency and slight irregularity are not unfavorable as regards prognosis, and these cases may be seen, after a couose of treatment directed to adiposity, to recover thesr pulse regularity. On the other hand, he regards the occurrence of complete irregularity, delirium cordis, as a sign of grave disturbance of the heart mechanism which can never be completely removed, and is sometimes also the sign of suddenly occuring death. In conclusion, thy author discussed the origin, importance, and prognosis of bradycardia.

NEWS AND MISCELLANY.

G. A. R. National Encampment, Louisville, Ky.

Reduced Rates via B. & O.

The B. & O. R. R. Co. will sell Excursion Tickets to Louisville and return at all Ticket Stations on its lines east of the Ohio River, at rate of one cent per mile each way for the round trip, for all trains September 7th to 10th, inclusive, vaild for return journey until October 6th, inclusive. Tickets will also be placed on sale, via B. & O., at offices of all connecting lines. Stop overs will be allowed on the return trip.

Veterans will bear in mind that all B. & O. trains run via Washington and Harper's Ferry. 3 t

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ORIGINAL ARTICLES.

SOME FACTS ABOUT DIPHTHERIA.

F. R. MILLARD, M.D., SAN DIEGO, CAL.

If the paralysis which comes on after the diphtheritic membrane has left the throat, can properly be called post-diphtheritic, then the peculiar characteristic pulse which can be observed before the membrane appears, can with equal propriety be called pre-diphtheritic. This pulse can sometimes be observed twenty-four or more hours before there is any appearance of the membrane, and it is always followed by the deposit, unless vigorous anti-diphtheria treatment is instituted. If this is commenced sufficiently early, the disease can in many cases be aborted.

It ought not to be very difficult for one who places a good deal of reliance on the pulse in making diagnosis, to detect the diphtheritic pulse, and when he has become familiar with it, the doctor will place as much reliance on it in making a diagnosis, as he does on the eruption in diagnosing scarlet fever.

It is less well marked in very young children than in those who are older. Why this is so I do not know. At one time I was disposed to refer it to the degree of brain development, but have occasionally seen it as well marked in children of four and five years, as in older persons.

I recall the case of an unusually bright and active two-year-old child, who did not seem ill, but was perfectly listless and had no appetite. The circulation was little if at all accelerated, and the temperature varied less than one degree from normal. It was not known that the child had been exposed to diphtheria, and though the pulse was suspiciously like pre-diphtheritic, it was not sufficiently so as to be diagnostic. Under the circumstances, no medicine was given, but the throat was examined every few hours. After watching for thirty-six hours, I was satisfied, but not at all gratified, at seeing three or four pinhead-sized points of diphtheritic deposit in the throat. That it was true diphtheria was almost proven by the fact, that before the baby was discharged, all who had anything to do in caring for it, except the doctor, had the disease.

What occurs is just what reason teaches us we should expect would occur. The earliest deviation of the pulse from the normal can only be

caused by the absorbed poison acting on the nerve centres. As the disease continues, the amount of poison in the circulation increases, and the deposit in the throat appears. Then, or soon thereafter, another purturbing element is added, viz.: fatty degeneration of the heart-muscle, and soon we have a pulse with quite distinct characteristics, and which is, generally, believed to demand the administration of alcohol.

Bacteriologists have demonstrated that the bacillus may be found in the throat before the membrane appears. It would be well if they would broaden the scope of their investigations, and if it should be found that the bacillus always preceded and accompanied the pre-diphtheritic pulse, it would go far to prove (what is believed, but not yet demonstrated) that the bacillus is the cause of diphtheria. If, on the other hand, it should be found that the pre-diphtheritic pulse always, or generally, preceded the bacillus, then the presumption would be that it was not the cause, or, at least, not the sole cause of diphtheria.

If the administration of alcohol could be beneficial in the treatment of this disease, it would best be shown when administered in the stage of the pre-diphtheritic pulse, *i. e.* before the membrane appears. But in neither small nor large doses, will alcohol prevent or delay the appearance of the disease. It does not in any manner antagonize the poison. So well is this now known that the last advocate of this method of treatment was silenced, or converted, a full generation ago, and now alcohol is only prescribed after more or less of the peculiar fatty degeneration of the heart-muscle has occurred.

What result does alcohol produce in this stage? Just what we ought to expect. It is an anæsthetic, and when a certain degree of anæsthesia has been produced, the respiratory and circulatory centres cease to feel, or rather take less note of the depression caused by the poison, and as a consequence the cutaneous capillaries dilate, the body surface becomes cooler, and the degenerated heart does more work. All of which may look very well on paper, but all of which means an increased expenditure of vital force in the present or in the near future. Sometimes the heart bears the added strain, and the patient recovers apparently uninjured. In other cases, the patient lives, but for the balance of his life carries a permanently weakened heart. All too often, that conveniently elastic blanket, "heart failure," covers the doctor's sin. No judicious doctor attempts to control the circulation in acute Bright's disease with alcohol. Why then try to do so in diphtheria, where albuminuria is the rule, and its absence the exception?

During an epidemic some cases of nearly the same age, and of apparently equal severity, were treated alike, except that one set received alcohol and the other did not. It was invariably found that those receiving alcohol passed more albumen, and for a longer time, than those who did not. Besides the alcohol cases showed a higher per cent. of paralysis, and the paralyses were more extensive and more prolonged than were they among the non-alcoholic cases. So marked were these two points that, for fifteen years I totally abandoned the use of alcohol in the treatment of diphtheria. But the wise and great men of two continents iterated and reiterated the assertion that it was absolutely necessary and great success impossible without it. Then one whom all English speaking doctors delight to honor, declared that should he withhold alcohol when the heart began to fail, he "would be guilty of, at least, criminal negligence." Now I have always had a sort of holy horror of professional criminality, and though I had certainly been fully as successful as the foremost of my acquaintances; still some of my patients would die. It matters not how successful a doctor may have been, he always wishes for greater success. I seriously asked myself whether the lesson had not been mislearned, and against my own judgment, (may God forgive me!) I again tried alcohol. The loss of more than one patient whom I had fully expected would recover, convinced me that the lesson had *not* been mislearned.

But many will say, alcohol should not be given for its effect on the brain, the heart, or the kidneys, but for its general sustaining power which is demonstrated by its retarding tissue change.

Admitting the claim to be valid, is it a good and sufficient reason why we should use it in this disease? As before stated, it can in no manner antagonize the diphtheria poison, nor is it in any sense a heart tonic. Remember that every drop of fluid in the system, and every fibre in the body is saturated with a subtle poison, which nothing weaker than horse's serum can pull out, (and it is a question whether this can do it,) and shall we rely on a drug whose highest recommendation is, that it retards tissue change, the only possible way by which it can be got out of the system. Remember, also, that the respiratory and circulatory centres are already carrying a dangerous load; that in the heart has already commenced that degeneration which if unchecked will soon render it incapable of sustaining the circulation; and that the kidneys are already past the danger line toward a fatal issue. And shall we rely on a drug whose action on the brain is, first to anesthetize the respiratory centre, and if carried further to paralyze it; whose action on the kidneys is first, last and all the time, to intensify that diseased condition which already threatens the life of the patient; and whose remote effect on the heart is to cause a degeneration like to, if not the same as the one for which we wish a remedy?

If there is any science in that sort of treatment it must be the science of faith, "The substance of things *hoped* for, the evidence of things not seen." It certainly is not the science of common sense. The total abandonment of the use of alcohol in treating diphtheria; the early judicious use of belladonna for its primary effect on the respiratory centre, and its remoter action on the throat, whereby the absorption of the poison is materially interfered with; together with the use of strychnine for its primary action on the circulatory centre, and also for its action as an heart tonic; with other treatment based on the common sense observation of what *is*, rather than on the science of faith or the theory of what ought to be, would result in a large reduction of the number, the extent, and the duration of diphtheritic paralyses, and would materially decrease the mortality of this fearfully fatal disease.

Let no doctor lay the flattering unction to his soul, that, when armed with an hypodermic syringe and supplied with anti-toxine, he will be complete matser of the situation. In spite of this formidable equipment, there will still be membraneous sore throats that call into use all the brains with which nature has blessed him, and all the skill he can acquire to avert a fatal termination.

SCARLET FEVER.

W. L. MARTIN, M.D., RANCOCAS, N. J.

The pathological condition that characterizes scarlet fever as a disease, I think is not clearly understood at the present day. In looking over different text-books, one feels that the diseased condition that maintains in this complaint, is very vaguely and unsatisfactorily described. And too, in following up the different discussions which from time to time appear in our medical journals, like unsatisfactory knowledge is obtained from this source.

To give a disease a rational and successful treatment, the parts affected and the morbid conditions of those parts, as well as the course run, should be well understood. In the treatment of disease our remedies will be given empirically if we do not fully understand the whole diseased condition, and medicine never will aproach near to the stability of an exact science, until the pathological condition is rightly and wholly understood.

In a period of over forty-three years, it has been my experience to have been

much brought into contact with scarlet fever, and in all of its varied forms. To be brief, I would say that it is an acute, exanthematous disease, with not only an outward eruptive manifestation, but the same eruption extends inwardly, and is wholly confined to the alimentary canal from the oral orifice to the anal outlet. The latter eruption coexists, and runs a like course with that upon the surface of the body, beginning, as on the surface, in the upper parts and progressing downward as the disease advances.

First the tongue is affected—the coating soon peeling off, leaving a red, almost raw, surface exposed. The entire buccal cavity becomes invaded, together with the throat which becomes highly inflamed; followed, shortly, by the stomach becoming irritable, vomiting showing a broken out and inflamed condition of that organ. Later on and nearing the close of the disease, there occurs diarrhœa, proving clearly a highly morbid condition of the bowels and due, I fully believe, to a morbid condition of the mucous membrane of the bowel the same as that upon the skin surface of the body.

The disease, when it runs on to a favorable termination, extends over a period of about nine days before convalescence begins. The throat naturally becomes more particularly affected, because in the act of respiration the air is drawn to and fro over the inflamed, erupted surface, thus irritating it and inflaming it more and more. So this becomes the point which gives the most suffering, and the point of greatest disease.

Measles and some other eruptive diseases confine themselves to the respiratory tract. Measles, particularly, invades all the passages concerned in respiration, as well as the lachrymal duct and the eye. This is because the mucous tissue of these parts is continuous to that of the bronchial tract. Therefore we have when the measles eruption appears on the surface of the body, a like eruptive condition on the mucous surface of the bronchial tubes, and characterized by a dry, irritative cough. And as the eruption extends up the lachrymal duct, the inflamed and watery eye appears.

On the mucous membrane of the air passages the germ of scarlet fever will not take hold, because the mucous tissue differs from that of the alimentary canal. So, aside from the external eruptive manifestation, scarlet fever is a disease confined wholly to the alimentary passage.

The contagious element of scarlet fever lies in the desquamative, bran-like scales from the surface of the body, together with the salivary secretion and the excretions of the bowels. Scarlet fever, therefore, is a disease that cannot infect by inhalation, but the very light, desquamative substance thrown off from the surface of the body may float through the air of the room and light upon some part of the person and thence be carried to the mouth. This is mainly the way it is transferred from person to person. If the salivary secretion and the bowel excretions are properly taken care of, there is no danger from this source. Therefore to prevent contagion the external surfaces of the body, in convalescents, should be carefully attended to. This may be done by some oleaginous substance applied to the entire surface of the body, thus keeping the skin in a condition so that nothing will be thrown off from it.

In the treatment of scarlet fever one very important matter should be borne in mind; never give a purgative medicine, except in the very beginning, before the eruption appears or before it reaches the stomach, when it might be proper to give a dose of calomel. The whole alimentary tract is so highly inflamed by the eruption upon the mucous membrane that an irritant purgative would be adding fuel to the flame. It is best to do but little in the way of internal treatment, knowing the disease will run a certain course, do what we may, but I do believe the disease can be wonderfully modified by pursuing a certain course of treatment—that is, the surface of the body should be greased all over, or the sponge bath should be applied frequently. These prevent the itching, allay the burning sensations and high fever, and are very grateful to the patient. The throat should receive attention; ice should be kept in the mouth, and a cold water cloth should be placed around the neck.

Scarlet fever is not a very contagious disease because it is not inhaled, as I have already said, but it is well to be careful for it is a germ disease. The room will not be infected if the person of the patient be well attended to, and there will be but little danger to others visiting the sick room, if inunction is done before desquamation begins.

The foregoing is the view I have held of the disease after many years of observation. I think by a careful examination of each case, we will find the symptoms clearly point to an internal eruption co-existing with the external.

The most prominent symptom of scarlet fever is the very high pulse, higher perhaps, than in any other disease. This will be readily understood when we consider the great extent of the lesion, and, too, that the parts affected are almost denuded of their natural covering in this disease, from the peculiar kind of eruption.

Having a clear knowledge of the pathology of the disease, the treatment must readily suggest itself. I repeat, cooling and calming remedies should be used, both externally and internally. To the almost raw surface, the air is a very great irritant, therefore emollient, greasy applications to the external surface to protect this part. Internally, cold, with mucilagenous drinks, will greatly soothe the parts in like manner. A little good common sense is all that is needed in the treatment when we understand the morbid nature of the disease.

COMMUNICATIONS.

CIRRHOSIS OF THE LIVER IN CHILDHOOD.*

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In the present communication, it is our desire to further study the case which formed the basis of a paper on the subject of hepatic cirrhosis in children that appeared in the *Archives of Pediatrics*, July, 1890. We desire, also to present the results of post-mortem examination in this case, and more particularly to consider the etiological factors in the production of cirrhosis of the liver in childhood.

The child came under my observation in June, 1888, and died in my private hospital September 24th, 1890, age 12 years and 4 months. Two months after, the clinical notes were recorded in the *Archives*. The disease pursued about the usual course as seen in the adult: Gastric disturbances, coated tongue and foul breath, abdominal pain slightly augmented by pressure, occasional nose bleed, stigmata composed of collections of dilated minute venules, constipation alternating with diarrhœa, headache, dry harsh skin, some side pain, marked jaundice, lassitude, languor, and drowsiness. Thirty days before death, ascites arose. In twenty days the belly became enormously distended with serum. The legs were œdematous, the veins of the breast and abdomen were greatly distended. The pulse was 120, respiration 30, temperature 38° C. The urine contained a small amount of albumin and a few granular tube casts. Total quantity passed in twenty-four hours, 500 c. c.

September 13th, 1890, I performed paracentesis abdominis and withdrew four and one-half litres of clear fluid. For twenty-four hours there was a free drainage of clear serum from the puncture; the next day it decreased to almost nothing.

The child became drowsy and complained of abdominal distress and pain. The original puncture in the abdominal wall was enlarged and a rubber drain inserted. At once 1,000 c. c. of fluid

* Abstract of reprint from *Archives of Pediatrics.*

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drained away. This fluid, however, was no longer clear serum, but contained some pus. Slight improvement was noted in the child's general condition; the temperature remained lower, the pulse below 100, and the respiration below 20. This gain was, however, of short duration. The urine became scant, high colored and bile stained, and was voided with difficulty. The child progressively grew weaker, hiccough became worse, the temperature subnormal, and the pulse extremely irregular. The urinary excretion was almost suppressed, and finally, on the evening of the 23d, convulsions arose, which presisted until death on the 24th. These convulsions were most severe, clonic in nature, and lasted for fifteen or twenty minutes, with only short intervals between. Death occured in one of these spasms.

Autopsy six hours after death. Child much emaciated; several petechial spots over thighs, legs, and chest. Thorax: heart small cavities dilated and contained clots; valves normal, aorta healthy; muscles slightly fibroid; lungs and pleuræ healthy. Abdomen: peritoneum thickened, and venous channels greatly dilated; stomach mucous membrane thickened and slightly ecchymotic, spleen presented a normal appearance, with the exception of intense congestion and consequent increase in size.

The liver weighs 665 grams, and is a remarkable example of atrophic cirrhosis.

The gall bladder was comparatively normal, its mucous membrane slightly thickened contained a small amount of bile, but no calculi.

The kidneys were large, swollen, congested, and hyperæmic. Miscroscopic study classes them as examples of parenchymatous nephritis becoming transposed to a condition of interstitial nephritis.

The rectum and bladder were not deceased. The intestines were normal, with the exception of the vermiform appendix, which was gangrenous from its terminal extremity almost to its origin in the cæcum. There was, however, no loss of structure or perforation. It contained no concretions or fecal matter.

I was unable to exactly determine why this gangrenous condition existed. Had the child survived a few days longer, perforation would undoubtly have occurred. The condition of the appendix may possibly be explained by the anatomy of the part.

The mesentery of the appendix is derived from the inferior layer of the mosoentery of the ileum, and is short, ending usually at about the centre of the appendix, or, at most, at the junction of its middle and terminal third.

There is another structure, which Treve states is the remains of the true mesentery of the appendix. It takes its origin from that part of the ileum most remote from its mesenteric attachment, and is united with the mesentery of the appendix. This peritoneal fold does not carry any blood supply to the appendix, which as a rule, derives its blood supply from but a single vessel, a branch of the ileo-colic.

These anatomical facts would appear to offer an explanation of the condition of the appendix in this case. The enormous quantity of peritoneal fluid, the distention of the cæcum, head of the colon, or ileum, with gas, and the interruption of intestinal peristalsis from fluid pressure, would cause dragging on the already too short mesentery of the appendix. In this way, we would have a material interference with the blood supply, and per consequence, an exciting causative factor of the condition found post-mortem. White (*Therap. Gaz.*, June 15, 1894), considers that the anatomical condition completely explains well-known types of appendicular disease.

It is somewhat remarkable that life could be sustained with such an important organ as the liver in the advanced state of disease shown by the specimen. The liver was practically converted into a mass of fibrous tissue.

Since the appearance of Howard's paper and my first communication, the subject of infantile cirrhosis has received more attention, and its problems are quite well worked out. Nor can the affection any longer be considered rare, for writers now constantly are recording their observations in this disease.

We briefly review the progress since 1890. The recent writings have shown us that the natural history of cirrhosis of the liver in childhood does not differ

from that of the same disease in the adult. Its cause, clinical symptoms, diagnosis and prognosis are identical.

Alcoholism seems to have the same relation to the disease in early life as in the cirrhosis of adolesence or of advanced age.

The relation of the eruptive fevers of childhood to the production of cirrhosis, was dwelt upon in my first communication. Further study and a careful review of the literature, prompts me to reiterate those statements, and to lay great stress upon the relation that a marked attack of any of the eruptive fevers has to the production of the disease. This relationship was clear in the case which presents the specimen under consideration. Other writers have recorded similar observations and particularly is this the conclusion of the Thesis of Porembski, "Contribution a L'etude des Cirrhosis Hepatiques ches les Enfants." Paris, 1891.

In Stack's* twenty cases at St. Bartholomew's Hospital and the Hospital for Sick Children, London, occurring in children under twelve years of age, averaging five years, there was no evidence that alcohol, syphilis or rickets was either directly or indirectly the cause; but, on the other hand, seven of the cases had suffered from scarlatina. In five, the symptoms of cirrhosis were decided to have dated definitely from the attack of scarlet fever. Six cases had measles, but the relation between the causative effect of this exanthema and cirrhosis, was not as clear as in those who had scarlatina. Acute nephritis was coincident in some instances. Jollye reports two fatal cases (*Brit. Med. J.*, Apr. 23, 1892, *Am. J. Med. Sci.*, Oct., 1892), brother and sister, aged ten and eleven, who had both previously suffered from measles. Ormerod (St. Bartholomew's Hospital Reports, Vol. xxvi, 1890), reports a remarkable case of cirrhosis of the liver in a boy, with obscure and fatal nervous symptoms. The child was aged ten. The post-mortem showed lesions in the brain and advanced hepatic cirrhosis. Vertical sections through the brain showed at the level of the optic commissure a small patch of softening, involving the outer layer of the left lenticular nucleus. The section, one and one-half inches further forward (pediculo-frontal), and the section behind) through anterior border of pons, the parietal section), no longer showed this softened patch. Some tiny patches of softening occurred in the upper part of the pons. No disease of the cortex cerebri or the cortex cerebelli. Ormerod refers to other cases in the literature, which presented the same peculiar and fatal nervous symptoms with post-mortem evidence of advanced hepatic cirrhosis and slight lesions in the nervous system.

The writer thinks that the Germans have presented evidences, which make it probable that the softening in the neighborhood of the lenticular nuclei had some essential connection with the disease. Gowers' case of cirrhosis of the liver presented symptoms intermediate between those of chorea and tetany, but no lesion was found in the nervous system after death. Tordeus (*Jour. de Med. de Chir. et de pha. Bruxelles*, I have not seen the original), reports a case in a boy of nine years, in which no predisposing or exciting cause could be found.

Some late writers have considered hepatic cirrhosis as infectious in its origin. Neumann (*Deuts. Med. Zeit*,, Berlin, March 23, '93 [Cohen]) reports a case of congenital hepatic cirrhosis, probably dependent upon syphilis. Death occurred at four months of age. Hausemann, (*Wien. Klin. Wochenschrift*, May 8, '93,) referred to by the same reviewer, also reports a congenital case. D'Espine (*Sajou's Annual*, c. 45, Vol. I, 1894,) records a case of cirrhosis of the liver in a boy who came under observation at the age of six years, and was observed for three years. Jaundice or albuminuria never occurred. Ascites was present for two years; repeated right-sided pleural effusions. Necropsy showed extensive fibroid changes and adherions of peritoneum and viscera, perihepatitis, perisplenitis and enlargement of spleen. The liver exhibited evidences of an intense, interstitial, periportal hepatitis. Bouchard, in commenting on the case, combatted the idea that infantile cirrhosis was due to syphilis.

Jollye (*ibid.*) remarks that the habit of the inordinate consumption of vinegar by the two children under his care

* *Am. J. Med. Sci.*, Vol. civ., No. iv., p. 501.

had, in his opinion, much to do with the production of the cirrhosis. The vinegar, lessening gastric secretion, interfered with digestion and allowed the formation of albuminoses and allied bodies, and by absorption into the portal system, set up a hyperplasia of the connective tissue in the liver.

Stack (*ibid.*) formulates the following conclusions:—"That alcohol syphilis, tuberculosis and malaria, account for 50 per cent. of the cases; the other most frequent cause being probably the exanthemata and errors in diet.

"That acute interstitial hepatitis is frequently found, microscopically, after the infectious fevers, especially after measles and scarlet fever; but the part played by the disease, alcohol, and diet, respectively, in those cases which afterward become examples of cirrhosis, is an open question; as is also the reason why some livers are affected with the hypertrophic and others with the simple form.

"That some cases are part of a general disease, due to some poison gaining admission to the general circulation, and especially attacking the liver owing to the slow circulation in the hepatic capillaries. Just as, no doubt, acute yellow atrophy is a general disease, the chief pathological change found *post-mortem* having caused it to be classified amongst the disease of the liver."

Brown's interesting case, with careful post-mortem records (*Arch. Pediat.*, Vol. X., No. 1., 1893, p. 48,) of a boy aged nine years and nine months, seems to have been due entirely to dietetic excesses.

Ghosh (*Indian Med. Gaz.*, January, 1891; *Am. J. Med. Sc.*, May, 1891), in reporting casses in children under two and a half years of age of cirrhosis that almost invariably terminated fatally in from three to twelve months, proposes as the only etiological element a faulty diet.

Osler states that in the cirrhosis of early life, excluding the alcoholic and syphilitic cases, the acute infectious diseases are probably the important antecedents.

The more recent papers of the year just closed are as follows:

Blagoveschenski, A. N. "Atrophic Cirrhosis of the Liver in a Child of Ten Years." (*Trudi Obst. dietsk, Vrach.*, Mosk., 1894, 11,129.)

Mirinescu. "Cirrhose Hypertrophique avec ictére Chronique Chez un Garcon de 14 Ans." (*Rev. Mens. d. Mal. de l'Enf.* Paris, 1894, xii., 560–567.)

Sainsbury, H. "Alcoholic Cirrhosis of Liver in a Child; Ascites; Meningitis; Death; Necropsy." (*Lancet*, London, 1894, 1, 147.)

Penrose, F. "Cirrhosed Liver from a Youth Aged Sixteen." (*Tr. Path. Soc.*, London, 1892-93, xliv., 1893)

Clarke, J. M. "Remarks on Cirrhosis of the Liver, with Especial Reference to its Occurrence in Children, and to the Mode of Death in Cirrhosis with Jaundice." (*Brit. M. J.*, London, 1894, 1, 1407–1412.)

Treatment of Mumps.

During a recent epidemic of mumps among soldiers, Dr. A. Martin successfully resorted to the following treatment: From the outset he instituted buccal antisepsis, which, when rigorously done, according to his observations, diminishes the chances of testicular complication. He, therefore, had his patients gargle and cleanse the mouth as often as possible with solutions of thymol, carbolic acid or very hot four per cent. boric acid solution. Besides, during the first days of the disease he administered antipyrin in daily doses of 2-3 grammes (30-45 grs.). This, he states, more rapidly effects the resolution of the inflammatory process than do sodium salicylate and other remedies; moreover, it acts more promptly on the fever and pain. In orchitis caused by mumps, pilocarpin subcutaneously in doses of 1 centi-gramme (1-6 gr.), repeated once daily, is said to have promptly diminished the pain from the first evening on, and to have lowered the temperature, which became normal on the third day. The swelling of the testicle disappeared between the eighth and tenth days. After the acute period of orchitis was passed, the patient was submitted to a tonic treatment (cod liver oil, nux vomica, cinchona extract, meat powder, sulphur baths, etc.) for the purpose of preventing testicular atrophy. —*Sem. Med.*

WHAT SHALL BE DONE WITH THE "HOMICIDAL CRANK"?*

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A year or two ago a man about fifty years of age came into my office and asked me whether I understood hypnotism. When I told him that I had made some study of the subject, he asked me to remove a "hypnotic spell" which was upon him. He went on to say that he was constantly kept under hypnotic influence by a certain man who lived in the same village in which he resided. He stated that a couple of years previously he first became aware of a certain malign influence exerted over him by hearing, while working at his trade (that of a barber) voices which accused him of incompetence and certain crimes and misdemeanors. These voices, heard rather infrequently at first, visited him oftener as time passed on. He grew to believe that his secret thoughts were read; that all lack of success and mishaps and accidents of various kinds were due to some evil influence which was exerted over him. He told his wife and friends of this malign power to which he then believed he was constantly subjected, and when they would not agree with him in his ideas, conceived the belief that they, too, were dominated by the same evil influence which had rendered him powerless. He said that he was compelled to give up his trade because the evil person who now governed his every thought and action prevented him from shaving properly or indeed doing anything correctly. He come to believe, shortly before coming to see me, that the evil influence dominating his whole life was exerted through hypnotism, and then naturally cast about to find the author of this strange and marvelous influence. He thought of several persons, and at first could not be sure which was the one on whom he should blame his troubles. But at the time he had called on me he was quite sure he had found the real author of all his misery. He named the person to me, and with flashing eye and angry expression denounced him soundly. He declared that even at the very time he was talking to me he could hear his persecutor distinctly speaking in his ear, saying that I could not in the least help him, and casting reproaches on me.

My explanation to him that all these ideas were vagaries of the mind brought about by the illness from which he was suffering, was, as you may readily suppose, not received.

I engaged him in conversation on indifferent subjects, and found that he was rational and intelligent when talking of these matters. I subsequently exhibited the man before the Pittsburg Academy of Medicine when the symptoms I have outlined were exhibited, for he was quite ready to converse.

When he had left the office, I at once wrote to his wife to call upon me, which she did some few days later. I urged her as strongly as possible to place her husband in an asylum at once, as he was a very dangerous man and might at any time attempt to kill the man whom he believed was keeping him constantly under hypnotic influence. She refused to do this because her husband was "so sensible" in many ways. She doubted whether his "peculiar ideas" were enough to constitute insanity. The man came back several times, each time telling the same story. He, however, became convinced that I was unable to remove the hypnotic spell which was upon him, but sought my aid in helping him to have his Svengali arrested and placed in prison. He said that he wished to act within the law, but that if he failed in this, he might be constrained to take the law in his own hands.

Seeing that his wife was unwilling to act, I then, with the approval and advice of several fellows of the academy, wrote a short statement of the case to the burgess of the town in which he lived, strongly urging that steps be taken promptly to place the man in an asylum. So far as I knew, this has never been done.

*Read before the Allegheny County (Pa.) Medical Society, May 28, 1895.

While it is true that this man may never attempt homicide, I believe you will all agree with me, that with the delusions and hallucinations he possesses, he is a great source of danger while at liberty to go about as he pleases. I have purposely related this case at some length as it is an excellent type of many so-called "homicidal cranks," and illustrates well some difficulties encountered in dealing with them.

This man's wife regarded him as "peculiar," but not insane. Yet the possession of those very reasoning powers which made his wife hold that he was not insane, rendered him, with the delusions and hallucinations he possessed, all the more dangerous. The old idea among the laity that to constitute insanity there must be great emotional disturbance or entire dethronement of reasoning faculties, still largely prevails. So it happens that friends of the chronic delusional lunatic or paranoiac, who constitute most frequently the "homicidal crank" are unwilling, as in the instance cited, to have him detained in an asylum. But they are often willing to have him so committed after he has killed someone and an indignant community are demanding that the death sentence be passed upon him.

Last summer a mechanic somewhat past middle age was admitted to St. Francis' Hospital, not so much because he was insane as because it was feared he would commit murder. In my first interview with him, I was, as is often the case, unable to discover any evidence of insanity. Before seeing him again I learned of delusions he entertained, and was, at my second visit, easily able to learn the character of his insanity. For some months past he had believed that his wife was unfaithful. He stayed home from work frequently to watch her, but even then he was convinced that she carried on illicit relations with different men.

Every man who came into the house for any purpose was suspected. He stated that as many as six men had intercourse with his wife in a single night, and moreover affirmed that his own daughters shielded her in her infidelity and kept a large black monkey about the house which in some way assisted them. It was noticed shortly before the unfortunate man was brought to the hospital that he had put in repair and loaded an old pistol which was about the house, and in speaking to me afterwards he said it had been his intention to shoot some man when he was quite sure of his guilt. This action very properly determined the family to place the unhappy man in the hospital.

Here we have a case of paranoia, another type of the "homicidal crank." I think it will be readily conceded he might easily commit homicide.

Another type of paranoia is that characterized by great exultation of the ego, together with delusions of persecution. Here the subject wishes to lead the nation, reform a great city, create a new religion, offer an easy plan for the settlement of political difficulties, etc. Finding, of course, difficulties in attaining his end, he logically sets about to ascertain the obstruction, and this he often finds to be some individual of great prominence. Frequently his attention is called to the individual who stands in the way of his own greatness, and the success of a great cause by some public discussion or dispute in the newspapers, which brings the said individual into great prominence. Thus Guiteau thought to unify a great party by killing President Garfield; Berkman sought to simplify the labor trouble by attempting to kill Chairman Frick; while Prendergast believed he would cleanse and promote the progress of Chicago by killing Mayor Harrison. At some time or other attempts on the lives of most European sovereigns have been attempted by the "homicidal crank." Indeed, it may be said of him, as of death, that he loves a "shining mark."

What is to be done with him? The question may be divided into two parts.

1. Before he has attempted or committed homicide?

2. After he has attempted or committed homicide?

The first of these two questions presents the greater difficulties. In the first place, not all so-called "cranks" are homicidal. Indeed, many of them, I believe, may be safely let at large undisturbed. But, in general, I should say that those who entertain systematized delusions of suspicion or persecution,

especially in connection with exaggerated ideas of self importance, ought to be under restraint. How and by whom is this class to be sought out, and by what legal process restrained? These are the vital questions in connection with the matter. Obviously, it would be impracticable for the authorities to appoint special examiners to go about seeking out the "cranks" in the community. But it seems to me that much could be done by members of our profession to educate the public to some intelligent understanding of the dangers to which society, particularly some prominent individuals in the same are ever subject to, while certain of these "cranks" remain at large. Many of them are brought to the physician's notice in some way or other, and in that large conception of our professional duties which clearly points that ministering to those actually sick, mentally or physically, does not by any means comprise our whole duty, but that it belongs to us to go farther, and warn families and the public generally against mental and physical harm which may be threatening. With a clear understanding of the nature of these cases of chronic, delusional, alcoholic, epileptic, and other insanities, which may bring forth the homicidal crank, and with this broader view of our relations and duties to society, the physicians may do much to lessen the number of murders by "homicidal cranks" at large. Nor should we be discouraged if our efforts sometimes prove futile. In the first case I have reported, looking upon my duty to the public as of paramount importance, and in my unsuccessful efforts to get the man in an asylum, beyond the reach of harming anyone, I revealed so much of professional confidence as seemed to me might be necessary to accomplish that purpose. It is very probable, however, that in reality I revealed nothing that was not already well known. But I could easily conceive of cases which might arise, where, in the discharge of his duty to the public, the physician might be called upon to reveal much of a private nature. In delicate or doubtful cases, however, he should seek counsel before doing so.

I believe that persons who, by their actions, seem to be mentally deranged and seek interviews at the White House, with the various governors and prominent individuals, and who haunt our courts and other bodies, should promptly be arrested and examined by competent physicians as to their mental condition.

If, after such examination, they are shown to be "cranks" of dangerous tendencies, they should by some appropriate legal process be remanded to an asylum. I believe this matter should be taken up and pushed vigorously. At very short intervals the newspapers furnish accounts of the doings of the "crank" at the White House. Unless he commits some overt act, I believe he is not arrested, nor are efforts made to institute any legal inquiries as to his sanity. While many of these "cranks" are doubtless harmless, one must believe that some would under certain circumstances commit homicide. Extraordinary measures have been taken to protect the President during the past few years against the "crank." It seems to me that in Washington the method of inquiry I have suggested could be most profitably instituted, for the capital of the nation draws and will continue to draw large numbers of "cranks" to it, largely because their delusions of greatness take a political complexion, and the seat of the government naturally becomes a sort of Mecca for them.

After he has committed a homicide, what shall be done with the "crank?" Certainly he should not be hung. I cannot endorse the Spartan method of Dr. Wm. A. Hammond, who in the Guiteau trial held that the prisoner was insane, yet should be hung. This view, however, is, I believe, held by a large part of every community. The homicide is usually dastardly, and the "crank" makes a certain show of reason and always spurns the idea that he is insane. These facts lead very generally to a popular and to a sometimes almost unanimous demand on the part of the public for his execution, some holding that he is sane or shamming insanity, others contending that his mental operations, while abnormal, did not prevent him from knowing the enormity of his crime and the difference between right and wrong. In short, the crime has been so revolting that the public does not wish to hear of arguments which will cheat them out of a victim to

atone for the sacrifice of the slain. Both the men whose cases I have related knew right from wrong; both of them might have committed murder; and if they had, probably both would have admitted it was wrong and offered as excuse that it was necessary to protect themselves and families. What did the public gain by hanging the unfortunate paranoics, Guiteau and Prendergast? Yet both these men, too, probably knew right from wrong. Happily this antiquated and unreasonable "right and wrong" test is, in the light of a higher and better medical jurisprudence, showing signs of decay. But it still shows great vigor. Hasten the day when it shall have disappeared altogether as a sufficient standard of sanity or insanity!

If the "homicidal crank" is not to be hung, what is to be done with him? Certainly the public has the best right to demand protection from him.

This protection would be afforded by sending him to an asylum, there to remain until cured, or he might be sent for a certain terms of years (10—15—20) and as much longer as might be required for his cure. Sent in either way, he should not again be set at liberty until after examination and unanimous recommendation for release by a competent board of physicians appointed for that purpose. If this plan were adopted rigidly, most "homicidal cranks" would remain incarcerated for life after having committed murder. For my own part I should like to see capital punishment abolished altogether. This done, the plan I have advocated would possess the still further advantage that the plea of insanity would not be apt to be urged without cause when it was known that the defendant, whether sane or insane, would be incarcerated for life if it were shown that he actually committed homicide. In stating this, I do not wish to be understood as saying that the plea of insanity is to-day unduly urged. Indeed, I can endorse the position taken by Kiernan, who in a very recent article says:

"The enormous number of insane in penitentaries proves that the plea of insanity, in place of being abused, is too rarely used."

Under the circumstances I have named, attorneys would largely be relieved of the odium which now attacks to setting up the plea of insanity, with the certainty in almost every case of being accused by certain newspapers of setting up what they are pleased to call the "insanity dodge."

Treatment of Appendicitis.

At a recent meeting of the College of Physicians of Philadelphia a paper was read upon the treatment of appendicitis. Some of the best known men in the profession took part in the discussion, and altogether the facts given are of the highest value. Dr. McBirney, of New York City, stated that medical treatment of these cases is always and invariably futile, and that in many instances an attempt at such treatment places the surgeon eventually at a distinct disadvantage because of the ravages which have been produced by the disease before he has had an opportunity to operate. He did not think it necessary to empty the bowels before operating. The appendix was the source of septic infection from the very beginning of the inflammation. He urged the removal of the appendix as early as possible before the general system has become infected; preferring, however, in the majority of cases to wait 24 to 48 hours until the acute symptoms had passed before operating. He challenged any medical man present to offer a plan of treatment which could be shown to have any distinctly favorable influence upon the disease.

Dr. William Osler, of Johns Hopkins, said that too many appendices were removed. He believed that while many cases required operation many are unnecessarily operated upon. As a result of a large number of post-mortems made by him he was positive that acute appendicitis could occur with entire cure, without operative interference.

Dr. S. Wier Mitchell said that he had seen neuroses and other nervous complications follow the operations for appendicitis. He knew of cases in which the pain and discomfort in the abdomen following the operation were so excessive as to incapacitate the patient from all employment and to render the remedy worse than the disease.—*Nat. Med. Review.*

CORRESPONDENCE.

NEWS FROM ABROAD.

To the Editor of The Medical and Surgical Reporter.

Dear Sir.—The following is a copy of a personal letter I received from my friend and chief, Prof. Parvin, written at Rotterdam, Holland, on the 6th ult.

Thinking, perhaps, as it contains matters of professional interest, it might prove interesting reading to the subscribers of the Reporter, I send it herewith for publication.

Very truly,

Chas. H. Reckefus, Jr.

Dear Dr. Reckefus:—I have been in Holland now nearly five days after a slow passage across the Atlantic, the slowest I have ever had except away back in the fifties when surgeon of a sailing vessel. Thirteen days seems a long time to those who compare the passages made by such steamers as the St. Louis or the Lucania.

But as far as benefit to health is concerned a slow steamer, unless the weather is very bad. is to be preferred to a swift one. The freedom from care and anxiety, from weariness and worry, and the absence of excitement make the passage restful. So too, give me a small, rather than a large steamer; in the latter there are often cliques and coteries, the pseudo—proud and would be aristocrat, while in the former the passengers are united one not claiming superiority over the others.

There were on the Obdam, several clergymen, one of them the President of Union College, N. Y., a man whom every one greatly admired, several lawyers and doctors also were among the passengers. Dr. Rosenstein of New York City, a distinguished member of the profession and as genial a gentleman as one could wish to meet, was one of our company.

A Maryland doctor, a graduate of Heidelberg, was on his way to Berlin to study nervous diseases, and he was the only one of the medical fraternity intending to stay more than a few weeks.

I have visited Amsterdam, the Hague and Leyden, and some matters of professional interest, relating to the present and chiefly to the past, will be mentioned.

There are four medical schools in Holland, one each at Leyden, Amsterdam, Utrecht and Groningen. The one at Amsterdam is much the largest, having more than six hundred students. The reason for this superiority of number, Dr. Place, Professor of Physiology in the school, tells me is the greater clinical facilities offered, there being under control of the faculty two hospitals, one with 700 beds and the other 500.

The Holland student is required to study medicine seven years. But while the term is much longer than ours, the expense is less, the fees for each of the first four years being two hundred guldens, and for cash the last three years only one hundred.

In Amsterdam Sylvius lived for years, and there chiefly acquired his great reputation, though afterward he became Professor of Anatomy at Leyden. Here, Rembrandt, though a native of Leyden, lived and his painting of the Anatomical Demonstration, which is one of the famous pictures of the royal gallery in the Hague, was made, commemorating the kindness of Dr. Tulp to the artist. You know from the poor chromos of this picture something of the original.

The painting represents Professor Tulp demonstrating the muscles of the anterior part of the forearm. The seven others presented are members of the corporation of Amsterdam surgeons. One of them has a paper on which the names of the surgeons are written, and to this list Rembrandt has added his own name and the date 1672. The contrast between the corpse—Sir Joshua Reynolds said that the dead body is perfectly well drawn and seems to have been just washed, and that nothing can be more truly the color of dead flesh—and the glow of life and the expression

of deep interest on the part of the surgeons is very striking.

Delft, which I only passed through, is to doctors famous as having been the birthplace of Lewenhoch, who, if he were not the actual discoverer of spermatozoids, at least more fully studied and described them than any one of his age. What a ripe age he reached, 91 years!

Here are some of his statements that I have had translated from a paper printed more than two hundred years ago: "It would require 100 spermatozoa to equal the thickness of a hair; if a grain of corn were hollowed out 50,000 would find room in the space, and the sperm of one woodlouse contains more than would equal all the millions of human beings in the world."

Delft Haven is of interest as having been the place of embarkation—July 1620, I believe was the date, ship Mayflower—of the Pilgrim Fathers. Strange, by the way, the New Englanders talk so much of fathers, so little of mothers! One can readily suggest that there could nothing come of the former if the latter were omitted.

Leyden interested me chiefly because there Boerhoave lived and taught. It seems to me that medicine has given the world few greater and none better than he. His monument, with its brief inscription, scarcely more than date of birth and date of death, reveals a man of commanding appearance, and of large head, with very prominent forehead.

The arms of Leyden, which you so often meet in walking through the town, exactly follow from its own high estate in the great centre of medical teaching, are two huge crowned gules in a field argent. Something in that rare and rich book of curious learning, *The Doctor*, which, if you never read, you ought to as soon as there is a lull in obstetric work, suggests that they give to the medical graduate the power to bind and loose, and moreover to bleed and blister, to administer at discretion pills, potions and powders, and to employ the whole artillery of the pharmacopæia.

The University Library interested me chiefly from the memorable words written by a former librarian, Heinsius: "I no sooner set foot in it and fastened the door, but I shut out ambition, love, and all those vices of which idleness is the mother and ignorance the nurse; and in the very lap of eternity, among so many illustrious souls, I take my seat with so lofty a spirit that I then pity the great who know nothing of such happiness."

Of course, too, I visited the church that Conthigs had attended at Leyden, and where he fell in love with the burgomaster's daughter, to whom, however, he never spoke, and in penitence afterward exclaimed: "God forgive me! for every Sunday while she was worshipping her master I used to worship her."

The Hague is chiefly visited by admirers of pictures and palaces. I confess that in the royal palace I was not half as much pleased with the costly furniture, the great paintings, embroideries, tapestries two hundred years old, etc., as I was in the portrait of the great historian, our own Motley. The Queen, now some fifty years old, you know she never married, was a sincere friend and admirer of our countryman. In the royal gallery of pictures Rembrandt's was the most interesting.

Another picture in the gallery of interest to doctors, is one of a doctor feeling the pulse of a love-sick maiden, while her mother is looking on with great anxiety: the legend is, "What good is medicine here; it is the pain of love."

There is also here a picture, by an unknown Holland artist, of Christ taken from the Cross, in which an anatomical error is apparent, the spear wound is in the right side. I have observed the same fact in several other famous old paintings in Europe, or in engravings from them.

The Hague is of interest too to the doctor, as having been the birth place of Deventer and also of Ruysch. The former born in 1651, worked in a watchmaker's shop until seventeen years of age. His skill in making orthopedic apparatus led him to study medicine. His work upon Obstetrics was published when he was fifty years old, an illustration of mature authorship quite exceptional in our days. Think of the many books on Obstetrics or in other departments of medicine by men who are little more than half that age, pub-

lished in our country. He practiced obstetrics for forty years. His wife too, was an obstetrician.

The obstetrician recognizes him as having first recommended the knee-chest position for the replacement of the prolapsed cord. He too was the first to describe the simple flat pelvis. One thing that mars his fame is that he had a secret remedy for false labor pains.

Ruysch was born in the same country, but I believe somewhat earlier (March 23, 1638). The fame of his injections will always last. There is a story that Peter the Great, who upon the death of Ruysch, bought his collections, finding among the objects the corpse of a child that seemed so life-like, and was apparently smiling to him, he stooped down and kissed it.

Peter the Great not only learned ship building in Holland, but took the deepest interest in Science. For example, in addition to the purchase just mentioned, he had Lewenhock show him the wondrous revelations made by his microscope.

I might have written you more of the present—of the weather, the rain is so frequent that I almost believe the Hollander was meant to be amphibian; of the canals in all the cities that I have visited; of the country with its vast stretches of green meadows, the same not limited by disfiguring fences; then meadows, showing frequently herds of cows which almost any American dairyman would be likely to covet. I might have written of the Holland women, so strong and active, with their large waists, and some of them with the quaintest caps and gold ornaments upon their heads.

I cannot say that Holland women approach in beauty American women; I cannot say that ladies walk gracefully, a Philadelphia lady, married to a Holland husband whom I called on at their home in Amsterdam, remarked that, there, ladies walked like canal boats.

I might have spoken of the Holland dog, which is so useful as a motor, pulling such heavy loads. By the way, I remember a story of a St. Louis doctor, who coming to Antwerp at night, the next morning looking out of the window saw a woman and a dog hauling a milk wagon, ungallantly remarked, "I am glad to be in a country where women and dogs are made useful."

But these and various topics have been omitted, for my thoughts have been chiefly given to the dead—indeed I may conclude with an extract from one of Southey's poems, promising in my next letter, to tell you something of the Medical Congress of Obstetrics, Diseases of Women and of Children, which convenes at Bordeaux on the eighth.

"My thoughts are with the dead; with them
I live in long past years;
Their virtues love, their faults condemn,
Partake their hopes and fears,
And from their lessons seek and find
Instruction with a humble mind."

Sincerely, THEOPHILUS PARVIN.

Trional and Tetronal.

In an exhaustive article, Egasse (*Bull. Gener. de Therapeutique*) reviews the literature regarding the therapeutic uses of these two drugs. The author, after an intelligent examination of the subject, is led to adopt the following conclusions. Trional and tetronal are not very toxic substances. Clinical trials show that trional especially is an excellent hypnotic, causing, particularly in the insane, a quiet sleep, its reparative influence being of long duration. It has the advantage over sulphonal in being rapid in action, even in small doses. Its bad after effects are rare, and when they occur are much less marked than in the case of sulphonal. Trional is not an analgesic in the true sense of the term, but in many cases it acts as an hypnotic by diminishing pain. It may be associated with opium or morphine. The dose of trional should not exceed 45 or 60 grains. The average quantity to be administered may vary from 15 to 22½ grains, taking into consideration not only the age and sex of the individual, but also the character of the affection to be combated. Dosage, however, should be left to the judgment of the clinician. Trional may be given in cachets or capsules, or, better still, suspended in a warm mixture, which facilitates its solution and absorption. It ought to be administered half an hour before retiring at night. In this manner patients will not feel the vertigo which trional sometimes produces. This drug is, on the whole, an excellent hypnotic, destined to replace sulphonal.—*Therapeutic Gazette.*

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SATURDAY, SEPTEMBER 7, 1895.

EDITORIAL.

NOTED IN THE EXPERIENCE OF AN ANESTHETIZER.

THE ANESTHESIA.

Anesthesia must be of the shortest possible duration. The administration should never be commenced until all other preparations have been completed, and the surgeon is ready to proceed with the operation. The practice so common in hospitals of anesthetizing one patient while operation is transpiring upon another, and sustaining the anesthesia until the surgeon be ready to proceed, is reprehensible in the highest degree. It amounts to culpable negligence, and the surgeon authorizing such an act should be held strictly accountable for any untoward results to the patient brought about by such malpractice.

Whenever possible the patient should be spared the sight of the immediate preparations for operation and any unnecessary display of instruments.

Never attempt to hasten anesthesia by the violent subjugation of the patient. In beginning the administration, give the patient time to become accustomed to the vapor, and to acquire confidence. A little time and patience exercised at the outset will prove a saving of time and trouble in securing the desired effects, and, invariably, will obtain a much more satisfactory anesthesia, with far less shock and harmful after effects than follow that brutal, cowardly, and unjustifiable method of forcing the ether by piling all available individuals upon the prostrate body of the frightened, struggling victim, and crushing him down until he be choked into insensibility.

As the administration progresses a point is reached where the stage of ex-

citement culminates and is about to pass into that of relaxation, where the faculties are in abeyance, the senses are blunted and volition totters, about to fall. Now, whether or not the earlier stages have been passed easily, whether the patient has been docile or violent, there comes a time when respiration will apparently entirely cease and the condition may even seem alarming. It is at this point that the anesthetizer not infrequently makes a mistake. He removes the inhaler to admit air and even takes measures to re-establish respiration. The mistake lies in not pushing the anesthetic and carrying the patient immediately into the third stage. As a matter of fact the apparent cessation of respiration is a willful act of the patient and can be sustained but for a moment, for as consciousness lapses the inhibitory power of the will is suspended. It will be noticed that although the patient is holding his breath, hearing, the last of the senses to be abolished, still persists, and ofttimes the patient will respond to an order distinctly spoken into his ear; the action of the heart is unaltered; and there is no cyanosis as would be the case were the condition a genuine asphyxia. Push the ether until relaxation is secured. To withdraw it and admit pure air is only to postpone the transition from the second to the third stage, and prolong the undesirable period of excitement and resistance.

This voluntary holding of the breath is generally the final exhibition of the stage of conscious excitement and resistance, but as frequently happens it may be followed by a period of marked unconscious or semi-conscious excitement, increased resistance and even violent struggle. It is only during these unconscious struggles that control of the patient by force is imperative.

This point of transition is important in another respect. It often happens that a patient, who during the early stages may have proved refractory to the influence of the anesthetic, upon reaching the third stage will drop into unconsciousness so deep as to excite apprehension. It would seem as though the ether was cumulative in action, and suddenly and forcibly exerted its full power to plunge the patient into profoundest narcosis. If the degree of unconsciousness is not appreciated and reaction allowed, the patient's life is imperiled. For the continuance of the ether will speedily produce paralysis of the involuntary muscles, stertorous breathing, disordered heart action, cyanosis, asphyxia, coma and death. If not immediately disastrous, the patient is liable to the more remote effects of ether poisoning, the results of irritation of the vital organs, and especially of the kidneys.

This renders it necessary to have some reliable and constant indication by means of which the degree of unconsciousness may be estimated, and the plane of anesthesia maintained at a comparative level, and without marked fluctuations. Many signs have been suggested as giving the desired indication of that golden mean between consciousness on the one hand and coma on the other. No one sign, however, holds good in all cases. Insensibility of the conjunctiva taken by itself is valueless. The abolition of general muscular reflexes is a pit for the unwary. The experienced anesthetizer may find the reaction to light of the pupil a useful indication of the degree of unconsciousness, but by itself the sign is not a safe criterion. Paralysis of the buccinators and stertorous breathing ought never to occur during anesthesia. These are huge danger signals and are outside the limits of the relaxation necessary for ordinary surgical anesthesia. Most desirable is the token indicating the

point where the second stage of anesthesia merges into the third.

There is one indication which presents in the vast majority of ether anesthesias which is the most reliable of all criteria for estimating the degree of unconsciousness. When a patient has passed into the third stage of anesthesia—the stage of the abolition of all voluntary muscular effort, the reflexes inhibited, and complete relaxation obtained—if the ether be withdrawn for a short time and then resumed the patient will show signs of laryngeal irritation by efforts at swallowing, and, if the ether has been withdrawn too long, *by choking*. This evidence, when the addition of a little fresh ether will cause these movements of the larynx, is the best criterion by which to gauge the depth of anesthesia. It is the line where the second passes into the third stage. Sensation is abolished, muscular relaxation is established and all the senses are held in abeyance. The complete withdrawal of ether will allow speedy reaction; the addition of fresh ether will deepen the unconsciousness.

A reliable measure, therefore, is to try frequently the effects of a little fresh ether, and if it produces no signs of irritation in the throat, withdraw it. The anesthesia is sufficient. If, however, fresh ether gives the evidences of irritation, continue the administration until additional ether will not cause these signs. If this be not done the patient will continue to regain consciousness, with the undesirable effects of muscular resistance, etc.

In operations involving the removal of an organ, as in an hysterectomy or a major amputation, the degree of shock entailed may be materially lessened by deepening the anesthesia immediately before excision. But the maintenance of profound insensibility throughout operation would of itself produce shock, perhaps to the extent of failure to react, and a death would be recorded from surgical shock. Indeed it is more than probable that a goodly percentage of the deaths reported as surgical shock, are in reality ether drowning.

A factor largely concerned in the production of shock, and one too often overlooked during anesthesia, is the very great and rapid reduction of animal heat occasioned by the conditions and environment of the patient. Thus there is rapid irradiation from the external surfaces of the body because of unusual exposure and insufficient covering. Now and again the body is wet with the water used during operation, or drenched with perspiration, the result of disturbed innervation. The patient is clad in garments much lighter than in health would be worn in the same temperature. Again, the enormous abstraction of heat incident to the evaporization of ether throughout the mucous cavities and the air cells of the lungs. This mechanical loss is intensified by the co-incident reduction of tissue-oxidization, loss of circulatory equilibrium, and the fluctuations in blood pressure.

The indications are to prevent undue loss of body heat by controlling, as far as possible, the conditions which permit of it; to supply by artificial means enough heat to make up the deficiency. The intense chilling of the mucous surfaces is often the source of bronchial irritation and pneumonic congestion. Dry heat may be applied to the surfaces of the body in any manner available, and the loss from irradiation reduced by covers of some non-conducting fabric—best of all by pure wool blankets. The maintenance of a high temperature in the operating room throughout the anesthesia, is apt to lessen the loss of heat from internal surfaces. These measures will be satisfactory under ordinary circumstances. Where woolen

blankets are not available, paper may, if clean, be substituted. As an insolator paper is as far superior to wool as is the latter to cotton.

When anesthesia is once satisfactorily established, the anesthetizer will find his attention fully occupied by the effort to maintain the desired degree of insensibility, to prevent, on the one hand, the revival of the patient to consciousness, and on the other depressing him into profound narcosis. The first involves not only the appreciation of pain and the excitation of muscular resistance, but it is very apt to be accompanied by vomiting and violent retching. Vomited matters are liable to become lodged in the wind-pipe and produce suffocation, and the straining of the effort is often so great as to compel the suspending of the operation. If the vomiting should occur, unless regurgitated matter has lodged in the trachea, the anesthetic should be immediately and persistently administered until relaxation occurs without loss of time and the admission of air by endeavoring to wipe clean the mouth. Lower the patient's head with extension and turn to one side so the material may be drained from the open mouth while the inhalation of ether continues.

Ether is prone to excite broncorrhœa sometimes to excessive degree. This is often a distressing complication, as it seems to materially interfere with the effect of the ether; and furthermore, patients in whom the complication occurs, are much more liable to nausea as an after effect on account of the ether-soaked mucous which is taken into the stomach.

It is also where broncorrhœa is profuse that cyanosis is most liable to transpire. But broncorrhœa is a complication of the earlier stages of anesthesia, and once the stage of relaxation is secured the secretion is not apt to be so profuse, and indeed may cease entirely. The exercise of care in not forcing the ether in the earlier stages, and of keeping the mouth as free as possible from the accumulation of mucous by frequently wiping it out, and constant efforts at draining will greatly mitigate the broncorrhœa.

Not infrequently where broncorrhœa pre-existed ether seems to have effected a cure. This does not hold good in emphysema. Ether is said to act disastrously in cases where kidney disease existed, and if so it must be because of systemic poison. In the observer's experience ether has produced no discoverable ill-effects even where kidney disease pre-existed; nor has pneumonia nor serious bronchial trouble resulted from its administration. Such complications undoubtedly do occur and frequently, and must be attributed to the anesthetic, but the anesthetizer rarely will see such complications arise if ether had been judiciously and skillfully administered. Certainly the risk in such complications occurring from the use of ether is not greater than the risk of sudden death from the use of chloroform, which no degree of intelligence can forsee, and no refinement of skill prevent.

Vote of the German Congress of Internal Medicine Upon the Diphtheria Antitoxin.

At the conclusion of the discussion before the above Congress on the value of the serum therapy of diphtheria the following resolution was adopted: "That this meeting is of opinion that no harm had been done to the patients by the antitoxin treatment, that the majority of observers had seen good results, and that the experiments concerning immunization were not yet sufficient and should be continued."

ABSTRACTS.

ADDRESS ON STATE MEDICINE.*

HENRY D. HOLTON, A.M., M.D,. BRATTLEBORO, VT.

Hygiene is as old as the profession of medicine. But "State Medicine" is of comparatively recent origin. We find the leader of Israel promulgating sanitary regulations for his people that can hardly be improved to-day. Greeks and Romans honored the sanitarian and gave much time to the study of subjects connected with matters pertaining to public health. Pure air, pure water were deemed by them to be a great desideratum. The Aztec erected aqueducts to supply the City of Mexico with pure water long before Columbus sailed from Palos. But amid the wreck of the Dark Ages the little that had been taught regarding the necessities of hygiene to public health was buried, and only in the last sixty years has its resurrection and reëstablishment upon a firm and more enduring basis been attempted.

Although it has been generally conceded that the people by their representatives have the right to enact laws which will protect them as individuals or as communities against all influences which are harmful to the person, property or health of the individual, separately or collectively as a community, it was nearly thirty years after the pioneers in this work attempted to improve the hygiene status of the poor in some of the manufacturing parts of the larger English towns, before the first State Board of Health was established by act of legislation in this country, that of Massachusetts.

So luminous was her example and so active, thorough and faithful in their teachings were the missionaries of this gospel of cleanliness and prevention that now every State in the Union, except three, have their health department established by legislative act, each of which is doing its own peculiar work, diffusing to a greater or less extent in their respective States a knowledge of personal hygiene, and exercising the powers delegated to them to prevent the spread of epidemic and contagious diseases, with the result that the citizen finds himself less liable to the contagion of pestilential disease, and with a prospect of added years to his average of life. I desire to call your attention to the great and good work these State Boards have done and to commend them for their enthusiasm, their patience and their perseverance in the varied and often delicate duties which have devolved upon them.

Not in every instance have they been composed of men familiar with the rudiments of sanitation, but too often political considerations have entered into the choice that an executive has made. This can not be too severely condemned, and an enlightened public are demanding that these boards shall be composed of experts thoroughly trained by education and experience in the best and latest sanitary knowledge, and the methods of applied hygiene. But the best of those boards have at times felt that the inadequate pecuniary provisions which have been made for work by even the most liberal legislature have hampered them in so many ways that the results of their labors have fallen far short of what they might and ought to have been, not alone for the sake of science itself, but for the best and highest welfare of the States themselves.

It is the part of wisdom and good statesmanship that in each State the militia should be equipped and drilled for service as conservators of domestic peace, and as a reliance for protection from a possible foreign invasion. It is interesting and stirs one's patriotism to observe with what alacrity and unamity

* Delivered at the Forty-sixth Annual Meeting of the American Medical Association, May, 1895.

legislators vote generous appropriations for these purposes. How painful the contrast when asked for a comparative pittance for carrying out measures to protect the same people from an invasion of an army of microbes which threaten more lives than the invading army of any foreign foe. My own State spending annually $20,000 more upon its one regiment of National Guards than upon its health department, and the great and good commonwealth of Massachusetts, pioneer in sanitary science as she has been in so much that has been for the benefit of humanity and the advance of our higher civilization, appropriates annually $187,000 more for maintaining her efficient military establishment than for her Board of Health. New York, the Empire State, with its large port of entry, and consequently its especial liability to invasion by any and all forms of pestilence, appropriates nearly $800,000 more for its splendid military department than for its health organization. These will suffice as examples of all the other States.

The explanation of all this is not a difficult task; it is summed up in the state of "public opinion." The masses are pleased with, and have no criticisms for, expenditures made for the gay trappings, the brilliant equipments, the pomp and grand display of their martial hosts. On the other hand, this same public, while they have become so far enlightened as to believe that some provision is necessary for their protection "from the pestilence that walketh in darkness and the destruction that wasteth at noonday," yet they do not appreciate the quiet, unostentatious work which is done in the laboratory and the quiet methods used to prevent the spread of different epidemics. These State boards have had their efforts cramped and much circumscribed, as a result of State lines and a want of co-operation with the boards of other States, and this leads us to consider the necessity and desirability of a National Board of Health, presided over by a Secretary of Public Health.

The bill introduced by Mr. Gray into the last Congress and known as Senate Bill 1840, was a good measure and ought to have become a law. But, alas! it came to an untimely death in the hands of the Committee on Epidemic Diseases. It was prepared and presented, as were many other worthy measures, with enthusiastic hopes that the LIII. Congress would rise to its high privilege and embrace the great opportunities that presented themselves for beneficient and practical legislation. But those hopes were

> "Like Dead Sea fruit that tempts the eye,
> But turns to ashes on the lips."

Before this bill is introduced into the LIV. Congress, it would be wise to amend it, by providing for an advisory board of one member from each State, from the medical corps of the army, navy and Marine-Hospital service. This would render it more practical and more popular. This advisory board would only meet on the call of the Secretary of Public Health, and would discuss and advise upon such questions as he might propose. They would be his correspondents in different parts of the country, and would be required to render such service as he might demand.

In order, however, to secure the passage of any bill it will be necessary to educate the press and through them the people and their representatives in Congress. The facts that demand attention are numerous and convincing, and it would seem that they need only to be presented to carry conviction to the mind of the ordinary person. Let the attention of congressmen be called to the records of the War Department, which show that during our Civil War the number killed in battle and of deaths from wounds was 93,443; the deaths from preventable diseases were 108,666. If to this vast number who perished, we add those who were disabled and broken in health by the infliction of preventable diseases that do not kill, as instance 1,700,000 cases of diarrhœal diseases, and we have the startling fact that no foe which could give us battle would decimate the active population of the country like the preventable diseases. At the same time millions upon millions are appropriated, and rightly too, to give the nation a Navy that will protect us from attacks of foreign armies, but only a few paltry thousands to protect our nation from the greater scourge of preventable diseases.

The subjects which would present themselves for study, investigation and regulation to this National Health Bureau are so numerous that we can only call attention to a few of them. It may be true, as suggested in a recent work on degeneration by Nordau, that we are living in an age when degenerates are to the front, forming public opinion and educating the masses by a literature which eminates from the brain of a degenerate, who is so well described by this author as a person who "finds it easier and more convenient to allow his brain centres to produce semi-lucid, nebulously blurred ideas and inchoate embrionic thoughts, and to surrender himself to the perpetual obfuscation of a boundless aimless and shoreless stream of fugitive ideas; who rarely arouses himself to the painful attempt to check or counteract the capricious and, as a rule, purely mechanical associations of ideas and succession of images, or brings under discipline the disorderly tumult of his fluid presentations. On the contrary, he rejoices in his faculty of imagination, which he contrasts with the insipidity of the Philistines, and devotes himself with predilection to all sorts of unlicensed pursuits permitted by the unshackled vagabondage of his mind; while he cannot endure well-ordered civil occupations requiring attention and constant heed to reality." If it is further true, as is claimed, that the number of these degenerates in this country are being rapidly increased in number by reason of the use of narcotics and stimulants, of tainted, adulterated or contaminated foods, the absorption of organic poisons, the sapping of vitality by the constant nervous excitement under which we live; is it not time that there should be some authoritative branch of the government to inquire into the causes of this degeneracy and advise some means of staying the tide of national destruction?

It is certain that the safety and welfare of the people of this country, and the interests of commerce, demand the establishment of a uniform system of quarantine, under the control of the Federal Government. It has been well said that in times of danger it is of equal concern to the entire country—to the people of the interior states as well as those on the seaboard—that quarantine should be national in character. It is not just to throw the expense and responsibility of the defense upon any one class of the State, nor is it just to deprive those living in an interior State from a voice as to the method and degree of protection along the seaboards and frontiers. Furthermore, to render all lines of defense effective, every point must be fortified when the invasion of disease is threatened or possible. Neither is it wise or safe to trust the defenses to chance or to a quarantine system varying at different points, as now exists under the separate regulations of the various States. While safety should be secured, as little interference and inconvenience with commerce and individuals should be allowed as possible.

The efficient Health Officer of Canada has well said, "that from the long period of incubation of some of the infectious diseases and the relative shortness of the voyage from many ports outside the country, and from the possibility of disease lurking in imported clothing and effects, it is evident that unless there could be a routine quarantine detention of all vessels arriving at every port and a routine disinfection of all clothing and merchandise from abroad, there is always the possibility of exotic disease passing the quarantine barriers in an invisible and unrecognizable stage and condition, and first declaring itself in the interior of the country. This can not be avoided without such detention of vessels, passengers and merchandise at the ports of arrival, and such consequent interference with trade and commerce as would be quite unjustifiable and impracticable." Hence the necessity of a central, harmonizing, governing board to bring into co-operation of the various local health boards and at the same time to secure the necessary co-operation of all foreign nations; in fact, the adoption, in some form, of the recommendation made at the meeting of the National Quarantine and Sanitary Association by a committee of which Dr. A. N. Bell was chairman: "That of the adoption, by the commercial nations, of a sound and well-digested code of marine hygiene, and of the necessary measures for insuring its strict enforcement."

While we would urge with all zeal the necessity of national quarantine, we would hold in grateful remembrance the work of local boards in our large ports of entry, and the able and thorough efforts in this direction of the Marine-Hospital Service. But we must bear in mind that this service was rendered in default of any national organization that could do this work.

Much of our safety depends upon the thoroughness with which proper quarantine regulations are enforced by the sanitary authorities of Canada. It is a pleasure to speak with some personal knowledge of the faithful and painstaking work done in the Dominion under the watchful care of the Medical Superintendent of Canadian Quarantine Service, Dr. Frederick Montizambert. By this efficient service the danger of imported diseases from this source is infinitesimal.

Standing on the verge of the centennial of the first successful demonstration of secured immunity from disease by the use of an antitoxin, it is pertinent to inquire if we are, in the light of our present scientific knowledge, carrying out carefully and faithfully, vaccination as Jenner gave it to us. It only requires the announcement that small-pox has appeared in any community, to learn how large is the number of adults who have never been vaccinated, not because of any objection to vaccination, but from neglect in having their attention called to it. It is unnecessary to discuss the usefulness, the desirableness, the imperative necessity of this wonderful protection to the human family. Each year of the century has demonstrated it. Millions of people have testified to its beneficent powers.

In this country, and in most of the countries on the continent, animal lymph is used in preference to humanized. England is now adopting it in some measure; but the Jennerian method of arm-to-arm vaccination has had so strong a hold that it has been slow in adopting the use of bovine lymph.

In nearly all foreign countries the production and distribution of calf lymph is under control of the government; in this country, however, only two States maintain vaccine establishments for the propagation of vaccine lymph, The general government does nothing at all. As a result we have the production and distribution of lymph in the hands of commercial men. Dr. Abbott remarks that, "the private producer conducts his operations in such a manner as to secure the greatest possible returns with the least possible outlay of money. Vaccine lymph is bought and sold, and competition in prices naturally leads to deterioration in the quality of this important article, which should be freed from every influence which may in any way lead to its impairment." But the danger lies not only in the fact that it is an article of commerce, but still more in the methods of its sale. Druggists and middlemen act as agents for its sale; as a consequence this vaccine lymph often remains for weeks or months in the drawers of these agents, and when needed for use the guarantee of the producer is disregarded, the lymph of several weeks or months ago is sold, and finally used for vaccination. As a result it proves inert, and the consequence is charged to the insusceptibility of the infant or vaccinated person.

As a matter of fact, when vaccination is conducted under the best conditions of fresh lymph, insusceptibility is found not to exist, or to be a matter of rare occurrence. If such vaccinations are being made during a brisk epidemic of small-pox, and in families which have been exposed to the disease, it may happen that some children will take the disease and die, during the delay occasioned by waiting to ascertain whether the lymph of uncertain source and age will prove successful or not, and thus life is jeopardized and the practice of vaccination falls into disrepute. Again, the commercial producer is very likely, in his haste to become rich, to take less time and to become careless in his technique—in consequence the lymph becomes contaminated with foreign microbes which may produce either abscess, septicemia, or other pathologic states. For these reasons we would urge that a most imperative demand exists for the establishment of a National Health Bureau, one duty of which would be to produce a pure vaccine lymph under the most careful aseptic conditions and furnish it to State Boards free or at cost.

It is a serious question if the time has not arrived when the medical profession should study from a purely scientific standpoint the great practical question of the effects of alcohol as a beverage.

Dr. Crothers, in an address before the Public Health Association, asserted that, "Inebriety is clearly more prominent as a cause of disease and degeneration than all other factors known at present. The various authorities who have tried to tabulate the number of defectives due directly and indirectly to inebriety, have varied widely in their estimates, showing that the facts are not yet all grouped and studied. These estimates have placed inebriety as the active cause of from 10 to 60 per cent. of all insanity; from 30 to 80 per cent. of all pauperism; from 60 to 90 per cent. of all criminality; and 30 per cent. of all idiocy. These are the highest and lowest estimates made by various authorities in this country and Europe, and bring unmistakable evidence of the influence of inebriety, not only over public health, but over all growth and civilization." Here is a subject for investigation in which our profession should, as guardians of the public health and as conservators of the country's good, take the lead, and not trail in the rear of public opinion as we are now doing. It is not only our privilege, but our duty, as members of the only profession who by training and experience are prepared to enter upon a thorough scientific study of the questions which it involves. If scientific workers in the medical profession should examine this question from a purely scientific and practical standpoint, taking facts and not theory as a basis, we should soon be in possession of accumulated knowledge which would enable the medical profession to speak with authority upon a problem which has been agitated and considered from other standpoints, without being able to lay down positive and incontrovertible propositions as to its effects, and the best means to remedy the various resultant conditions. It is true that for many years a committee of the British Medical Association have had the subject under consideration and, in connection with the British Social Science and Public Health Associations, have done much to place this question upon a scientific basis, and have furnished data from which an effort has been made to restrict and alleviate the various phases of trouble that have resulted from its general use. Yet as diseases in general are modified or intensified, and their sequelæ changed by climate and environment, in how much larger measure shall we find that the effects of alcohol are different in our climate, with our natural characteristics and the different forms or methods of using it. Let a National Bureau of Health take this matter in charge, and pursue an exhaustive investigation upon the lines indicated, calling to their aid and utilizing the work done by committees of this and other organizations, and it would soon be in possession of positive facts with which to elucidate this great problem.

At the present time the whole world is roused and stands with bated breath listening for the scientist to announce the discovery of a new therapeutic or preventive serum. It is believed that we are possessed of a serum or antitoxin by which the mortality of diphtheria is apparently very much reduced; while we are in the stage of demonstration of the effects of the serum in preventing and curing this disease, it is necessary that we should exercise great care in securing fresh reliable antitoxin, and caution in its use. In this matter we are again indebted to Massachusetts for an example of what the general government should do; prepare under suitable conditions the antitoxin of undoubted purity and supply, under proper regulations, free to such communities as might desire it. Investigation experimentation is going on in many laboratories which promises to give us other valuable curative and preventative serums. Although disappointed in the curative value of tuberculin it has proved of great value in the diagnosis of bovine tuberculosis. In the older states, where great attention has been given to dairy interests, every method has been adopted that would in any way increase the product of milk, regardless of the health of the animal; as a result, we have under these conditions what is practically unknown on the prairies of the West, a corresponding increase in dis-

eases affecting the dairy cow, the principal one being tuberculosis.

James Law in a report on tuberculosis remarked: "Few, if any, diseases maintain a sway over a more numerous genera of animals than tuberculosis. All must, therefore, be considered as possible bearers and disseminators of the infection, and no such animal can be left out of account in any systematic attempt to root out the disease. Some are, however, justly held to contribute more than others to the maintenance of the affection and in this sense, in addition to man himself, we must consider as pre-eminently bearers of this disease cattle, fowls and pigs. It is doubtful if any observation or study has been sufficiently thorough to enable any one to make an accurate table of the prevalence of this disease among the cattle of this country. As already indicated it is hardly known in the West, as in over two million beeves examined in the packing centres it was present in only two-tenths of 1 per cent., while in cows in this city (Baltimore) 2½ to 3½ per cent. showed its presence, and in at least twenty thousand examined in the State of New York it was present in nearly 2 per cent. In Massachusetts it was present in 7 per cent. During the last five years various investigators have been at work upon this subject, and have arrived at conclusions more or less correct regarding some of its phases. These conclusions are of a most startling character, and certainly demand and are receiving at the hands of the profession most serious consideration; among the laity these decisions have produced a state of great alarm and an apprehension of danger from the use of dairy products as well as meat. Time will not permit us to enter upon a full discussion of this subject; we may, however, briefly consider some of the conclusions arrived at after a careful and thorough clinical study, as well as biologic experiments, post-mortem examinations, and microscopic investigations of the flesh and milk of a large number of animals. Dr. P. H. Bryce, Secretary of the Provincial Board of Health, Toronto, having made a most careful study presents the following deductions:

1. That tubercular infection has existed in greater or less degree in man, according to post-mortem evidence in a percentage, in some groups of cases, to the extent of from 25 to 50 per cent.

2. That it produces fatal results at different life periods after the first year to an almost equal degree.

3. That the tubercular process, fatal in so large a degree, may nevertheless exist in man and in animals, according to the localization, condition and extent of the tubercle, the constitution of the individual, the environment, as of climate, etc., for an indefinite length of time, the individual finally dying from other disease.

4. That the infection may, however, be present in such instances to an extent sufficient to transmit the disease through the air passages, and possibly in cattle through the medium of the milk.

5. That in many cases the disease may remain in an inactive condition, the man continuing in a fair condition of health, and being able to pursue his ordinary avocation, and the cow appearing well nourished and giving milk in apparently normal quantities; but that in all such cases there is an ever present danger of cold, or other occasion of inflammation setting up general infection of the system with fatal results.

6. That the seat of the disease will largely determine the degree of danger of infection and the direction of its transmission.

7. That in cattle, while the bacilli are probably always present in the milk when the udder is tubercular, yet the bacilli may be present in the milk in a considerable percentage of cases where even post-mortem examination reveals no tubercles of the udder.

8. That in woman, tuberculosis of the mamma is but seldom found.

9. That in cases where tubercle is present in lymphatic glands, in lungs, liver and other organs, the juice of the muscles has been found in some instances to produce infection, even where no tubercle of muscular tissue could be discovered.

9a. That the inoculation of either men or cattle, when not experimental, takes place in practice always by way either of the respiratory or of the alimentary tract.

10. That the inoculation is dependent

upon the extent and frequency of the passage of ineffective materials into either tract, and largely upon the receptive condition of the mucous membrane in both cases. A healthy mucous membrane offers much resistance to the passage of bacilli.

11. That the infection may begin in the epithelial surface of the air cells of the respiratory tract, and probably, in some instances, also in that of the mucous membrane of the intestinal tract.

12. That when bacilli pass into the system they do so by way either of the blood capillaries or of the lymphatic vessels in the wall of the air passages and the villi of the intestines.

13. That when they have passed into the blood capillaries they may produce localized tubercles at the point of inoculation, or may, by passing into the blood current, produce infection at points and in organs distant from the same.

14. That inoculation into the lymphatics, while capable of producing localized infection, tends to transmission of the bacilli to the neighboring lymphatic glands and to the prevention of the progress of tubercular infection of the system.

15. That while inoculation by means of the blood vessels of the intestines may result in tubercles in the liver, spleen, etc., yet inoculation by the chyliferous lymphatic is likely to result in tubercles localized in the lymphatic glands, especially of the intestines and mesentery.

16. That both in man and cattle, by far the most common seat of tubercles is in the lungs and adjacent lymphatic glands; and that this fact, along with the statistical evidence of the frequently repeated cases of pulmonary tuberculosis in persons exposed to the infected air of sick rooms and in cows to that of infected stables, points to the inference that the great proportion of cases of tuberculosis are the results of aerial infection by way of the respiratory tract.

17. That while the great number of deaths from tuberculosis in children, as from *tabes mesenterica* or consumption of the bowels, points to the probability of frequent cases of infection through milk and other food by way of the alimentary tract; yet the still larger number of cases of lung tuberculosis in children, the relatively small number of calves and young cattle infected with tuberculosis and the comparatively few instances of 'tuberculosis cattle in which the intestines, mesentery or other abdominal organs are found on examination to be exclusively tubercular, point very strongly to the conclusion that infection by way of the intestines is relatively seldom in cattle, and that where it does take place in children it most probably is dependent on the previously unhealthy and congested state of the mucous membrane of the walls of the stomach and of the intestines.

After the most careful experiments, Drs. Ernst and Peters arrives at these conclusions concerning the infectiousness of milk: "First and emphatically, that the milk from cows affected with tuberculosis in any part of the body may contain the virus of the disease.

"That the virus is present whether there is disease of the udder or not.

"That there is no ground for the assertion that there must be a lesion of the udder before the milk can contain the infection of tuberculosis.

"That, on the contrary, the bacilli of tuberculosis are present, but with no discoverable udder lesions."

It will be noticed that these investigators, although working in widely different fields, have made one point in common which seems to be of great significance so far as its propagation is concerned, that is "that the juice of the muscles has been found to produce infection when no tubercle of muscular tissue was found, but when it was found in other structures of the body." The milk of cows suffering from tubercle in the lungs but without any lesion of the udder or the presence in the milk of any bacillus, will by inoculation produce tuberculosis. This would seem to add weight to the question already raised, whether the disease is caused by the bacilli, or by a virus of which the bacillus is only any incident. The prevention and cure by anti-tubercle serum as advocated by Dr. Paul Paquin and others, if efficacious would do much to save life and prevent the destruction of property. Should further data be needed to show the important place this subject would hold in governmental investigation, it is only necessary to call attention to the commercial importance of

our beef and dairy products, the market for which is now in jeopardy by reason of the exaggerated fears of people lest they gather to themselves the seeds of disease.

The subjects which would demand attention from a Department of Public Health, are numerous. The question of proprietary medicine which interests every family in the land, is an evil which in spite of the continuous maledictions that have been hurled against it by all scientific medicine, both as organizations and as individuals, has continued to thrive, until at the time it is intrenched behind millions of money and is held in high esteem by the people because of its ability to hide its worthless character or possible dangerous combination behind a trade-mark. If the manufacturers of these nostrums were obliged to deposit with the Public Health Department, under certain restrictions, as suggested by Dr. Stewart, the formulæ from which they are prepared, it would do more to eradicate this stupendous swindle from the land than all the fulminations that could be hurled at it for centuries; it would have an equally elevating effect upon the science of pharmacy which is so indispensible to our success.

The question of pure unadulterated foods, pure drugs, pure water; the cause and prevention of the degeneration already alluded to and the resulting increase of insanity; the effect of our varied climate upon diseases we suffer from, and many others all press for solution.—*Jour. Amer. Med. Assoc.*

CAUSE OF DEATH AND CHANGES IN THE ORGANS AFTER SCALDING.

Markusfeld and Steinhaus (*Centrabl. f. allgem. Path.*), record the results of a number of experiments made in order to determine the cause of death after scalds. The experiments were performed on rabbits, and the scalding was produced by placing the ears in water heated to a high temperature. Generally the rabbits die when the temperature from 56° to 66° C. was reached. In the blood small globules were found, similar to those which can be produced by the influence of heat on a hanging drop of blood, and which are due to the separation of globular processes from the red blood corpuscles. The blood also contained microcytes and poikilocytes, and broken-down red corpuscles. Thrombi were found in numerous veins and arteries, in the kidneys, liver, lungs, cardiac muscle, brain and spinal cord. These thrombi were composed of blood plates, which in some cases occupied the whole lumen of the vessel; in other cases only a portion of the same, whilst the remaining part was filled with red corpuscles, broken-down red corpuscles, and more or less numerous leucocytes. Often the blood plates were mixed with granular masses, and sometimes the lumen of the vessel appeared filled with almost homogeneous hyaline substances. The arteries and many of the veins of the ears were filled with compressed masses of red blood corpuscles; the other veins contained finely granular or almost homogeneous masses. During the experiments the temperature of the rabbits rose considerably, but the same changes were found in the blood vessels when the rise of temperature was prevented by pouring very cold water over the animals. To furnish conclusive evidence that death and pathological changes are due to the action of heat on the blood flowing through the vessels of the scalded ears, it would be necessary to determine the result of ligaturing the vessels of the ears, and so preventing their contents from entering the general circulation. Owing to the numerous capillary anastomoses this is impossible. But by ligaturing the main vessels only a small amount of blood from the ear reaches the general circulation, and in these cases the authors found that in spite of the ears being exposed to water at a very high temperature (70° to 75° C.), death did not occur during the course of the experiment, the temperature did not rise, the blood changes occurred later, and were much less marked, and thrombi were exceedingly rarely seen.—*Brit. Med. Jour.*

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

Typhoid Fever in Infants.

(*Jour. Am. Med. Assoc.*) 1. Tyhoid fever occurs more frequently in children than is generally supposed.

2. The fact that ulceration and hemorrhage is much less frequent would explain the absence of pronounced abdominal symptoms.

3. The erratic, undeveloped and hypersensitive nerve centers in early child life, explain why the toxic secretions of the Eberth bacillus should make cerebral symptons very pronounced.

4. Given a child of any age with or without intestinal disturbance, with a continued elevated temperature, with or without evideuce of cerebral disturbance, the possibility of the presence of the Eberth bacillus of typhoid fever should be constantly kept in mind.

Scarlatina and the Streptococcus Infection.

After a careful review of this subject as it is at present understood, the following conclusions are drawn by the author:

1. A specific scarlet fever germ or toxin is not yet demonstrated.

2. The disease is associated with a streptococcus infection.

3. A streptococcus is admitted to be the cause of surgical scarlatina and puerperal fever.

4. A streptococcus is admitted to be the cause of erysipelas.

5. The frequent association of the latter with puerperal fever, and in turn with surgical scarlatina.

6. The relation of idiopathic scarlatina to surgical scarlatina and puerperal fever is acknowledged.

7. The identity of the streptococcus pyogenes and erysipelatis is advocated.

8. Clinical records showing the association of suppuration, erysipelas, and scarlatina in the same subject, is suggestive of the parallelism of these three infections and the probable biologic identity of these several streptococci.

9. Clinical differences and varying susceptibility to the one or the other is due to heredity, age, anatomico-physiologic conditions, congential disease, environment, life, history of the invading host, and its avenues of entry.

10. Idiopathic erysipelas should disappear from the nomenclature, analogously, idiopathic scarlatina may meet a like fate.

11. Natural immunity may be due to heredity and healthy fully developed structure.

12. Acquired immunity is to be sought from antitoxins of the disease, or through blood serum therapy that will revolutionize the treatment of this dread disease.

13. Inunctions are disapproved of, antiseptic baths better meeting anti-bacterial and physiologic indications.—(*Journal of Amer. Med. Assoc.*)

The Influence of the Schools in Disseminating Infection.

Dr. Moreau Morris (*Archives Pediatrics*) says that parents and guardians, with few exceptions, are willing to carry out the suggestions of the family physician regarding the best way of preventing the spread of infectious diseases. In the schools personal contact was unavoidable, and the susceptibility of children in general made it difficult to prevent the spread of such diseases. There were many ways of carrying contagion which would escape the notice of the casual observer. Thus, the school books were usually covered with muslin or cloth, often from houses in which there had been infectious diseases. The indiscriminate use of slates and of lead pencils was another means of spreading disease, and the common practice of washing the slates with saliva was exceedingly liable to cause the dissemination of diphtheria. In the higher grades of the schools it was the custom to furnish the scholars with paper pads and lead pencils, but unless each scholar had his own pencil, the same danger still existed. Books should never be covered with any textile fabric, but instead with stiff glazed paper. The outer garments of the children should be placed in suitable closets outside of the class rooms, and should be disenfected while there. The children should be compelled to come to school with clean faces and clothes. A mild attack of scarlet fever or measles, was popularly supposed to be noncontagious, and for this reason many children so affected were allowed to return to school while capable of spreading the disease. The teachers deserved much credit for their watchfulness and promptness in detecting children just developing infectious diseases. Any child found to be suffering from a sore throat should be sent home immediately, and not be allowed to return to the school until entirely well. All the children attending the public schools were required to present vaccination certificates, or to be vaccinated if this had not be done in seven years, but such vaccinations could not be performed by the Board of Health physicians without the consent of the parents or guardians of the children.

Management of Eczema in Children.

The paper on the above subject was read before the British Medical Association by Dr. Morris, who called attention to the following points: First, Are internal remedies required in eczema? If so, what are the indications which should guide us in their use? The author's view is, that internal medication is not required unless some constitutional dyscrasis underlies the skin affection. In chronic eczema, unaccompanied by constitutional dyscrasia, local treatment may be relied upon entirely, when the disease is inflammatory. Antimony is most valuable. In neurotic cases the sheet-anchor is opium. If this disagree, some other sedative may be given. If the neurotic element shows itself as depression, quinine may be

combined with the opium; if the discharge is abundant, belladonna may be combined with the quinine. Phosphorus, strychnine, and arsenic are useful in selected cases, but the last must be used with caution, or harm will be done instead of good. Cod liver oil and general tonic treatment are indicated when malnutrition and anæmia are present. Iron is contra-indicated when acute inflammation is present.

Second. The influence of diet in eczema. The author does not believe that the diet has any influence, except indirectly.

Third. What are the principles on which the local treatment should be carried out? Speaking generally, every case should be treated as if it were of parasitic origin. The objects aimed at in its local treatment are, first, to destroy microorganisms; second, to protect the inflamed surface from the air, and further microbic invasion; third, to soothe irritation.

The principles upon which the local treatment is to be carried out are as follows:

Soothe when the inflammatory process is acute.

Stimulate when it is chronic.

In either case keep the parts continuously under the influence of antiseptics.

How to Prescribe Hydrochloric Acid in Affections of the Stomach.

The *Journal des Practiciens* contains an able thesis on the above topic. The author recalls, that the introduction of acids in the treatment of stomach affections is by no means new, since their employment was suggested even by Haller and Sydenham, though Rousseau was the first to bring out the scientific use of chlorhydic acid. This acid, according to the present author, has two actions—eupeptic and antiseptic. Under the former indications, the acid is to be used in chronic inflammations of the stomach, in cancer of that organ, in pyrexias, in pulmonary tuberculosis and in a word in all those conditions which diminish the digestive power of the gastric juice. Two strengths are useful, two grams in 500 of water, and three grams in 300 of water. The former can be used in a wineglass dose at the end of half an hour after meals, the latter a tablespoonful in half a glass of tepid water at the end of a meal. The acid is contraindicted in round ulcer in dyspepsias with hyperæsthesia and neuropathies. It should not be used for more than three weeks or a month, and then after omitting for a fortnight use again as before.

As an antiseptic, this acid has given good results in those cases of abnormal fermentations with pyrosis, due to the formation of organic acids, in dilitation of the stomach, etc. When used antiseptically, the acid should be given outside of the periods of digestion, *i. e.*, a few hours after meals.

A Case of Poisoning With Nutmegs.

In the *Lancet* for January 19, Mr. T. G. Simpson, L. R. C. P., Edin., relates the following cases (*N Y. Med. Jour.*): On December 9 his assistant was called to see a woman, twenty-six years old. He found her lying on the bed in a drowsy condition and very delirious. There were fairly lucid intervals, when she complained of a sensation of great tightness across the chest and of vertigo and faintness when attempting to rise. She vomited several times. The pulse was seventy five a minute and rather feeble; the heart action was also feeble; the pupils were normal. It was ascertained upon making inquiries that the patient, who was a strong, healthy woman, had taken two nutmegs crushed in a small quantity of gin, as she had gone over the menstrual period for a week. The assistant directed her to remain in bed and to take a little strong coffee with a dessert spoonful of brandy in it every half hour. He also prescribed a mixture of potassium bromide, ammonia carbonate, sodium bicarbonate, spirit of cajuput, and chloroform water (quantities not stated). The author himself saw the patient a few hours later and found her condition improved, but still showing the same symptoms. He continued the treatment and the next day she was very much better, although there was a little vertigo, and she was very weak. The coffee and brandy were given up, but the medicine was continued, and on the following day she was able to get up. Since then recovery has progressed favorably. The author adds that the nutmegs had no effect whatever in producing miscarriage. —*Medical Review.*

Ravages of Small-Pox Prior to the Discovery of Vaccination.

At the time of the announcement of vaccination by Jenner small-pox caused more than one-tenth of all the deaths of the human race. Fifty million people died in Europe from small-pox during the eighteenth century. In the sixteenth century the disease appeared in Mexico, and 3,500,000 of the population yielded up their lives in a few years, leaving some provinces almost depopulated. In 1707, in Iceland, 18,000 died in one year, the entire population being but 50,000. Seventy per cent, of the people of Greenland died of small-pox in 1734. Small-pox is the most fearful disease with which the human race has ever been scourged. Macaulay tells us it was always present, filling the church yards with corpses, and leaving on those whose lives it spared the hideous traces of its power. "If a modern traveler," says Dr. Hyde, "could be transported to London in the early part of the present century, no peculiarities of architecture, dress or behavior would be so conspicuous as the enormous number of pock-marked faces he would encounter at every turn." It spared neither rich nor poor, and even invaded the palace of the king.—*N. Y. Med. Record.*

The Prevention of Consumption.

Dr. B. W. Richardson, in a late number of the *Asclepiad*, states that an obsevation of the following rules will benefit those having a tendency toward pulmonary tuberculosis.

Rule 1.—Pure air for breathing is the first rule for the prevention of consumption.

Rule 2.—Active exercise, outdoor as much as possible, is essential for the prevention of consumption.

Rule 3.—Uniform climate is important for consumptives.

Rule 4.—The dress of the consumptive should sustain uniform warmth.

Rule 5.—The hours of rest should be carefully regulated by the sunlight.

Rule 6.—Outdoor occupation is preventive.

Rule 7.—Amusements of consumptive should favor muscular development and sustain healthy respiration.

Rule 8.—Cleanliness in the broadest sense is of special moment.

Rule 9.—Every precaution should be taken to avoid colds.

Rule 10.—The diet of consumptive people should be ample, with full proportion of the respiratory foods.

A Treatment for Acne of the Face.

In an abstract from the *Bul. Gen. Therap.*, which appears in *Lyon Med.*, the writer gives the following formula, which, he says, has often been employed at St. Louis with success: Fresh lard, 750 grains; betanaphthol and styrax ointment, each, 30 grains. Application of this mixture should be made strong friction every night for a week, then interrupted for six days, when they may be repeated if necessary, although it is often useless to do so. If there is an appearance of small acute clusters, which generally show themselves toward the second day, the acne is ordinary cured or very much ameliorated at the end of a week.

Asafetida in the Treatment of Insomnia.

A five grain pill of asafetida, exhibited after supper and repeated at bed-time will often bring refreshing sleep. In mild delirium, and especially during the period of unrest that precedes an attack of delirium tremens, the injection, by rectum, of two ounces of mixture of asafetida will, in many cases, produce the much-needed sleep without recourse to the more dangerous narcotics. —*Louisville Med. Monthly.*

Ophthalmia Neonatorum.

This disease is received by the child either in the interval from the time of the rupture of the amnion to expulsion from the vulva, or after delivery, by touching its eyes with unclean hands. The questions arising are, shall we render the vaginal secretions innoxious by universal irrigation, or by the selection of suspected cases; or shall we inject each infant's eyes following delivery, or treat the infection on its appearance? Prophylaxis in the mother is the ideal. Irrigation is not, however, free from disadvantage. Therefore, it is not faith to make the innocent suffer, unless the sacrifice is much less than the benefit. A healthy woman will not affect the infant's eyes. My custom is to irrigate with a warm bi-chloride solution of 1.3500, when the mother has leucorrhœa, gonorrhœa, or any ulcer, abscess, or abrasion. This is done in the stage of labor, and is repeated every four hours in prolonged labors, using an antiseptic oil, composed of olive oil, 95 per cent., and oil of cassia, 5 per cent; as an offset to the chief evil of irrigation—the washing out of the mucous secreted in labor. Children born of woman so treated, do not need injection of nitrate of silver, but should have the eyes washed with soft cotton, dipped in a boracic acid solution. If we are in doubt as to a patient, it is the least evil to employ the vaginal irrigation. In cases of gonorrhœa, the child's eyes should be treated after Credes method, in addition to the irrigation of the mother.—*Archives of Pediatrics.*

Lead-Poisoning Caused by the Use of Sugar of Lead in Repairing a Mill Stone.

In November and December, 1893, several persons living at Lang-Gons, near Giessen, were attacked with lead poisoning. It was assumed that the illness was caused by lead enamel in the family cooking utensils. An examination showed that the utensils were free from lead. Attention was then directed to the food; and it was found that the flour came from a grist mill to which the farmers took their grain to be ground. Out of eleven samples of flour and four of bread made from it, seven of the former and three of the latter contained lead, the amount varying from .013 to .068 per cent. of the ash. It was a matter of interest to discover whether it existed in the metalic state or as a soluable salt.

Analysis of fragments of the mill-stone of the suspected mill, and of substances used to repair the same, showed that a grayish white substance was used to fill up gaps and cavities in the top stone, which, according to the miller's statement was "alum." But analysis proved it to be acetate of lead. The question, how the miller came to use this poisonous substance was submitted to a court trial, but the result was not stated.—*Boston Med. and Surg. Jour.*

Rewards of Early Rising.

Aside from the helminthous property ascribed to the early bird by the adage, a recent newspaper writer implies that if one would become a healthy and well-preserved monarch all that is necessary is to acquire the habit of early rising. In support of his theory he cites the Emperor Francis Joseph of Austria, who invariably retires to rest at nine and is up at five—sometimes even at four—in the morning and who is "athletic, elastic and youthfully attractive." King Humbert of Italy, likewise remarkably well-preserved, is also up with the lark and has taken his first breakfast long before the majority of his subjects are out of bed. Among the early risers Emperor William, the Queen Regent of Spain, King Charles of Roumania, King Oscar of Sweeden, King Leopold of Belgium—indeed, says this writer, 'it only requires a passing glance at the various thrones of Europe to show that those monarchs most healthy and well preserved for their years are precisely those who, according to the new-fangled doctrine of the medical authorities, ought to be the ones most physically decrepit." The moral of which has been already pointed out: Get up early if you would be a healthy and well-preserved monarch.—*Jour. Amer. Med. Ass'n.*

The Resuscitation of Stillborn Infants.

During the past three or four years, in several cases of this kind, apparently under the most hopeless circumstances, when all other standard methods had failed, the author has resorted to hypodermatic injections of brandy or whiskey with the most satisfactory results. The amount used is five or six drops in first one arm and then in the other, fifteen drops being the largest quantity used in a single case. If the mother has suffered alarming antepartum hemorrhage, and the infant has been drained of blood before its birth, this method can avail nothing.

Stammering and Its Treatment.

Coxwell (*Intercolon. Quart. Jour. Med.*) This subject discusses from the neurological standpoint. After showing that the stammerer is never amnesic, and that the trouble of utterance is aggravated by ill-health, nervousness, etc., the author states that the fault lies in a paralysis of some part of the articulatory or phonatory mechanism plus excessive activity or even spasm of other parts. It is different from affections like writer's cramp, which are brought on by overuse of the organ; dysphemia does not result from overuse. Singing, from its rythm and continuous flow, is easier to the stammerer than ordinary speech, which changes rapidly in time and rate of flow. The author locates it in Broca's centre, and postulates two conditions to explain it, namely (a), a want of power (paresis) in some of the articulatory nerve mechanisms of that centre, and (b) a want of accurate nerve regulation of that cen re owing to defective control of it by higher centres. Hence the treatment is two-fold, namely, generally tonic, and specially gymnastic. Generally tonic: Regulated outdoor exercise; shower baths, and nerve tonics (quinine, strychnine, phosphorus, or Fellow's syrup). Vocal gymnastic: Daily practice in uttering the simple vowel sounds, at first slowly and then more rapidly, and after good proficiency is attained to add consonants. The patient should next practice reading aloud daily, mastering every difficulty only by slow and assiduous practice. Simply narrative reading should precede dialogue. Patience and steady practice (including vocal or singing exercise) should be combined, but always short of actual fatigue. The author states that he has cured many in this way, the treatment taking several months.

Strychnine in Nervous Cough.

Dr. L. Lichtwitz (*Sem. Med.*) according to author, the best treatment of nervous cough of central origin (in choreic, tabetic and hysteric patients)—which differs from ordinary cough by the nearly complete absence of expectoration and by habitually disappearing at night—consists in the administration of strychnine in large doses. He begins with 6 milligrammes of strychnine sulphate per day, increasing by 1 milligramme every second day, until a daily dose of 8 to 9 milligrammes has been reached. The medication is suspended at the end of two weeks, to be resumed a week later. If no result is obtained after the second week of treatment, Dr. L. resorts to electricity, massage, or hydrotherapy; or prescribes a change of climate (sojourn in the mountains.)

Renal Complications of Typhoid Fever.

Roth (*Munchener med. Wochensch*) cites a number of statistics in relation to the frequency of nephritis as a complication of typhoid fever. He mentions the observations of Mygge, who, systematically examining the urine of seventy-two typhoid fever patients, found albumen present in fifty-two. In half of these cases it was due to nephritis, in the other half to pyelitis or to cystitis. He refers particularly to cases in which the renal symptoms may be much more marked than those referrable to the gastro intestinal tract, and cites a case of a boy taken suddenly ill with headache, thirst, fever, and pain in right loin. On admission, fourth day of the disease, the urine was scanty, dark-red, cloudy, contained considerable albumen, epithelial cells, numerous white blood-corpuscles; no casts. On the eighth day roseola were found; on the ninth day the spleen was palpable; the urine contained albumen and epithelial cells from the pelvis of the kidney; no casts. The disease thus began as a pyelitis, it being only on the eighth day that the diagnosis of typhoid fever could be made. The constant absence of casts argued against nephritis. The patient recovered. Careful examinations will prevent the overlooking of pyelitis occurring during the course of typhoid fever, but in cases beginning as pyelitis the diagnosis may be obscured. Unless absolutely necessary in such cases the cold bath shoule not be used. During convalescence great care must be exercised regarding the diet, especially in the use of albuminous foods.—*University Med. Magazine.*

Tabes or Glycosuria.

Glycosuria says Grube in the *Neurologisch es Centrablatt*, is not uncommonly observed at the end of tabes. This should not cause doubt in our diagnosis. But it is much more difficult to decide between the two diseases when we see symptoms indicative of tabes in a recent case of glycosuria, or when the initial weakness of tabes causes glycosuria to be discovered. The actual question for decision is the distinction between genuine tabes although complicated with diabetes, and a pseudotabes. It has been said that the contracted pupil was the special characteristic of genuine tabes, but Grube proves that it has been observed in pseudo-tabes. The most significant symptom, in his opinion, is the existence of urinary difficulties, the latter never having been so far observed in a single undoubted case of pseudotabes.

The Treatment of Gouty Deposits in the Joints.

Among the most unpleasant features of chronic gout are the uratic deposits which occur in various parts of the body, and especially in the joints. These are commonly met with in the smaller joints—the fingers and toes—but are quite often observed in the larger articulations, such as the knee. In consequence of these hard, nodular masses, motion in the affected joints is difficult and painful, and if present in large amount they may prevent motion completely and constitute a a marked deformity. A large number of remedies have been suggested for the removal of gouty tophi, but, with the single exception of Piperazine, the results have been far from promising. Considerable testimony is at hand, however, in favor of this new remedy, and among others, Dr. Schweninger, well known as the physician of Prince Bismarck, writes as follows:

"In the course of my experience I have frequently had to deal with large stone-like gouty growths on the elbows, ears and eyelids, and in order to remove these they were formerly operated upon. I, however, lately tried Piperazine, along with the usual other treatment to dissolve these growths, and have experienced some wonderful results. Piperazine proved very valuable in nephritic colic as well as gout. The cases of

the latter, about 115 in number, had already been treated in various ways, but without success, and in spite of that I can affirm that with Piperazine I have been successful in curing over 90 per cent. of the patients suffering from this complaint. During my experience, extending over many years, I have treated numerous cases of acute and chronic gout, on which I have tried many different remedies, but with none of them have I succeeded so well as with Piperazine."

To obtain pronounced and permanent results from its use Piperazine must be administered for some time. A convenient method of employment are the tablets of Piperazine-Bayer, each of which contain the average daily quantity, which should be given in divided doses in a large amount of water.

Milk as a Diet of the Sick.

Where milk is employed in the dietetic management of the sick, it is well to remember that good cow's milk is never more than faintly acid when received, often and properly neutral; and should never require more than one-twentieth of its bulk of limewater to neutralize it; while poor cow's milk often has a distinctly acid reaction, and easily undergoes changes. The bacteria are foreign to milk, determine its various fermentations, and are reduced to a minimum number in milk properly collected and handled. That the degree of heat at and below which the nutritive values of milk are not materially changed is 75° Centigrade (167° Fahrenheit). That all milk is altered in its constitution by high temperatures. That the curd of casein is made lighter and more easily digestible by dilution.—*Coit.*

Treatment of Angina Pectoris.

Angina is one of the numerous pathological occurrences which may supervene in the course of cardiac sclerosis, which is the condition represented by the classical symptoms of angina pectoris.

What should be the treatment during a paroxysm? Drugs which will produce a rapid dilatation of the blood vessels are indicated. Morphine is one of the best, and should be given hypodermically, 1-6 grain to begin with. If this does not suffice, it must be repeated. Nitrate of amyl is quicker, and should be carried by the patient. Faradization of the cardiac region is useless. During the intervals between attacks nitroglycerine should be given, and if the iodides are used that of sodium is preferable. Tobacco, alcohol, fatigue are avoided, the diet should be good, but not stimulating.—*Rev. de Therap.*

Oxytocic Action of Salicylic Acid and its Compounds.

Hiram Vineberg (*Gazette de Gynecologie*) from observations of his own on the human subject, and from the experiments of C. Bing on the guinea pig, concludes as follows regarding the oxytocic action of salicylic acid:

1. Salicylic acid and its compounds may be advantageously administered in cases of scanty or retarded menstruation.

2. They ought not to be given to females who have a tendency to abort, or to those suffering from menorrhagia or metrorrhagia.

3. Their administration must be carefully watched in cases of pregnancy, and they must be immediately suspended on the least sign of pain or labor.—*Australasian Med. Gazette.*

SURGERY.

Europhen in Minor Surgery.

As an antiseptic and cicatrisant in cases of minor surgery, Europhen has been favorably commented upon by a large number of authors, and Dr. Doermer has recently added his testimony as to its value as a serviceable remedy to the general practitioner. As he has had occasion to employ it in over eighty cases his observations are entitled to more than ordinary considerations. Extensive use was made of Europhen in the form of the powder in cases of fistulas after extirpation of glands, fresh incised wounds, abrasions of the skin, abscesses, ulcers of the leg. In the form of a 3 per cent. ointment it was used in the treatment of contusions, burns, glandular enlargements, and in the after treatment of operation wounds. In combination with boric acid 1 to 3, it was employed in middle ear catarrhs and ulcers of the leg, and as a 5 to 10 per cent. gauze in all kinds of recent wounds, abscesses, furuncles and carbuncles, phlegmons, glandular suppuration, etc. In all these cases the author had formerly been in the habit of using iodoform, and he found it difficult to discard this long-tried remedy and resort to another. The results of his change, however, were highly satisfactory. In almost all the cases he was able to completely dispense with iodoform, and never observed eczema, or other cutaneous eruptions during the use of Europhen. The fact that the latter remedy is devoid of the penetrating odor of iodoform is also greatly in its favor, while symptoms of poisoning were never observed even when it was employed in large quantities. The good qualities of Europhen are that it forms an adhesive covering over wounds and that it exerts an antiseptic influence due to the liberation of iodine. Of course, a few instances occurred in which suppuration of wounds was not arrested under the use of Europhen, but this happens frequently enough under the iodoform treatment. The application of a 5 to 10 per cent. Europhen gauze appeared to be the most serviceable dressing for wounds, both fresh and suppurating. The powder also proved very effective in cases of markedly secreting wounds; and in ulcers of the leg, Europhen exerted an actually specific influence, and produced healing much more rapidly than under all forms of other treatment. In cases where iodoform gave rise to irritation of the skin in this class of cases Europhen proved extremely serviceable, applied pure or mixed with boric acid 1 to 3. Inasmuch as it produces rapid healing in cases of fistula, resulting from extirpation of the glands and other scrofulous or tuberculous foci, Doermer suggests the use of emulsions of Europhen with glycerine, ether or alcohol, for the treatment of cold abscesses or tuberculous diseases of the joints. Among all the above mentioned diseases he is unable to find one in which the remedy proved an absolute failure, and hence he considers himself warranted in counting it among the most valuable additions to the materia medica.

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ORIGINAL ARTICLES.

TYPHOID FEVER.

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In the neighborhood or territory where I practice medicine we have more or less typhoid fever every Summer and Fall. Last year, during the Summer and Fall months, I had to contend with a local epidemic of the disease, consisting of twenty-eight cases. I have selected typhoid fever, not so much with a view of producing anything original on the subject, but for the purpose of introducing the disease to elicit a discussion of the subject, and thereby gain further light upon the malady under consideration.

There is no disease that affects the human body that is of greater importance to the medical profession than this fever. It is a disease that most commonly occurs between the ages of 15 and 30 years; that is, it is an affection of youth and early adult life, though it may, and does, occur in any period of life; in the small infant at the breast of its mother, and in the old person who has passed the age of three-score and ten; but, according to my experience and observation, it occurs very seldom in children under the age of 4 or 5 years, and I do not remember of ever treating but one case of typhoid fever in a person 60 years of age. Indeed, I consider that the age of 50 years, to a certain extent, renders a person exempt from the poison of typhoid fever. Whether it is from physiological or anatomical changes in the glands of the small intestines, or from a previous attack of the disease, I do not know, but my observation is that it is very rare to see the disease in a person who has passed the age above named.

Typhoid fever is a specific, infectious disease, caused by a specific germ, or typhoid bacillus, that is carried into the system commonly with water drank that is contaminated with the poison. There are other means of conveying the germ into the body, such as milk charged with the virus, and perhaps breathing the atmosphere reeking with the poison emanating from the discharges of the patient; but, in my opinion, water is the vehicle employed in a great majority of cases for conveying the germ into the alimentary canal, from the simple fact that, in impure wells and springs, the poison is engendered or originated, and, finding its way into the *prima viae*,

comes in contact with the glands of the small intestines, especially the glands of Peyer, Brunner, and other glands in the neighborhood of the ileo-cæcal valve, where it finds a congenial home and location, producing in the anatomical structure hyperplasia, sloughing, ulceration, and other lesions characteristic of typhoid fever. In some severe cases the ulceration may extend to the jejunum, duodenum, and stomach, and in fact may not only affect any portion of the digestive tract but may affect other important organs and glands of the body.

The diagnosis of typhoid fever is a little difficult in a great many cases, especially in the early period of the disease where the symptoms are not very prominent and well developed. It comes on gradually and in an insidious manner in the majority of cases. There is a disinclination to business, or want of fixedness of purpose, with general malaise. The patient has a severe headache, loss of appetite, almost invariably constipated bowels, though sometimes there is diarrhœa, pain in the small of the back, urine scanty and red or lye-colored; the tongue may have a heavy, whitish or brown coat, or it may be rather clean or very slightly coated. There may be epistaxis, or bleeding of the nose, or there may not be. In some cases we have sick stomach and vomiting; in most cases there is a rose rash or an eruption on the breast and other portions of the body, which usually makes its appearance from the fifth to the tenth day; pain in the bowels, especially upon pressure over the right iliac fossa; pressure over the ileo-cæcal valve will also reveal a gurgling sound, caused by the gas and other contents of the bowels being moved. The patient is thirsty, and has a fever; evening temperature higher than in the morning; the circulation is accelerated and very often dicrotic. In a great many instances this prodromal stage has been going on several days before the physician is called to see the case, so that the second week is on hand, when all the symptoms are increased in violence; the fever ranging from a little above normal to 102° to 103°, or more in the morning, according to the severity of the case, and one, two, or three degrees higher still in the afternoon. I have seen one or two cases where the morning temperature was the highest. Hemorrhage from the bowels is liable to occur in this stage, by a blood vessel being broken either by distention, sloughing and ulceration, or by violent peristaltic action of the bowels. It occurred in ten of my twenty-eight cases. Of the twenty-eight cases four died. Hemorrhage occurred in all four of the fatal cases.

Tympany is present in a great many cases, caused from an accumulation of gas in the bowels, sometimes filling and strutting them until it is an alarming symptom. Often the tympany is slight, and in some cases it is entirely absent throughout the course of the disease. Perforation of the bowels is liable to occur from the sloughing and ulceration, or from other causes, and death from peritonitis is the result. Delirium is very often present, especially at night; in some cases violent, wild, and maniacal in character, and at other times mild, low, and muttering. The patient is very nervous, picks at the bed-clothes, there is subsultus-tendinum; the patient talks in a discontented way, asks to be carried home or allowed to go home.

The circulation in this disease presents some peculiarities, at least to me. For instance, in one of my twenty-eight cases the temperature in the evening was 104½°, pulse 105; next morning the temperature was 102°, the circulation still 105. In another case the temperature in the morning was 101½° and the circulation 120; evening fever temperature was 103°, and pulse 120, and remained about in that way throughout the disease. Now, what I mean to say is this: that the temperature may vary as to morning and evening, but the pulse-rate does not, according to my observation, unless there is some very material change in the individual's condition, such as serious complications or approaching dissolution. This pulse-rate shows that the circulation is not in keeping with the temperature. Antipyretics, internal and external, will reduce the temperature and change the quality of the pulse, but will not affect the pulse-rate. Whether this difference in the circulation is due to the individual temperament of the patient or to the toxic or typhoid poison affecting the

ganglionic system of nerves that preside over the heart and circulation, I do not know; but it is a clinical fact, and can be demonstrated in any epidemic of typhoid fever.

By the circulation better than any one symptom, can we judge whether we have a mild case or a desperate one. A fast pulse does not necessarily indicate an extremely high temperature, but does show an extensive ulceration going on in the intestines, and also indicates a very doubtful prognosis.

In beginning the treatment of typhoid fever, we must remember that this disease has a tendency to exhaustion and asthenia, and it is of great importance that we use all possible means of economizing the strength and vital forces of our patient from the start. It also requires an intelligent nurse to carry out the directions of the attending physician, one with judgment and discretion enough to know when and how to apply and give remedies during his absence. As soon as I know that I have a case of typhoid fever, I direct that the patient go to bed, and remain there perfectly quiet; not even allowing them to get up and attend to the calls of nature; but use the bed-pan when it is necessary to evacuate the bowels or bladder. A patient should not be permitted to lie in one position too long, but changed sufficiently often to secure against hypostasis, pneumonia, and congestions. When I first see the patient after the diagnosis is made, if the bowels have not moved, I give castor oil and turpentine, or produce one or two actions of the bowels with an enema. Usually the patient has been given pills or something to act on the stomach and bowels, by some member of the family before a doctor has been consulted. Then I give my patient eight or ten drops of turpentine in mucilage about four hours apart. If it produces strangury, which it will do in some cases, or offends the stomach, then I discontinue it. I know it is an old remedy, and has been in use for years, and I also know it is a germicide and a good one, and does not interterfere with treating symptoms which are rational and necessary. I have given carbolic acid and iodine, and like them very well in some cases. If the disease is caused by a germ, which I believe, why not disinfect the alimentary canal with turpentine, carbolic acid, or sulpho-carbolate of zinc?

The use of turpentine. where it agrees with the patient, comes nearer preventing the dormant condition of the secretions, which is shown in the dry lips, fauces, parched, dry, brown tongue, than any remedy that I ever used.

Some of my *confreres* claim that in calomel we have a splendid remedy, and that the disease can be aborted by its being given in the first stage. I have given calomel in typhoid fever a few times, but have not tested it enough to speak of its merits. If it does abort the disease, or benefit it greatly, as some claim, I think the praise should be given to the bichloride of mercury; for, before the calomel gets far into the small intestine, it is converted into corrosive sublimate by the acids and juices of the stomach and duodenum. Now, knowing that typhoid fever is the result of germ or microbe poison, which manifests itself in the glands, especially of the small intestines, it occurs to me that the bichloride of mercury would be a splendid remedy in this disease. As a germicide, it stands pre-eminently at the head of the list, and, given in fractional doses, by the discutient effects of the bichloride, the hyperplasia of the glands will be modified and relieved, and the secretions aroused from the dormant slumber that is so often found in typhoid fever. I have never used the bichloride of mercury in this disease, but intend to do so whenever an opportunity is offered.

To control the high fever, I use the sponge-bath, either warm or cold, whichever feels best to the patient; and by sponging and bathing, two, three, or four hours apart, as is indicated by the temperature, the fever may be reduced one or two degrees in this way by conduction and evaporation, bringing down the temperature until the patient is calm and serene. If the sponge-bathing does not have the desired effect, then I give some of the antipyretics, and prefer antifebrin, as I think it produces less depression than any other. Antipyretics should be very carefully watched, less they produce too much prostration and heart depression. If the bowels are

running off from a catarrhal irritation of the mucous membrane of the intestines, then I give turpentine and laudanum, which have always acted well in my hands, but, if the diarrhœa is caused by indigestion or improper feeding, then I correct the trouble by giving a diet that is easing on the digestion, and, if necessary, give lactopeptine and bismuth. When there is hemorrhage from the bowels, I give opium and acetate of lead in pills, and, when necessary repeat four or six hours apart. When a patient has had a hemorrhage, I make it a rule to constipate the bowels with opium, and keep them in that condition for several days, if the stomach and other circumstances will permit, for this reason: in the ulceration or broken vessels where the blood came from is a plug, or blood-clot adhering to it, and any moving of or peristalsis of the bowels is liable to dislodge and remove this blood plug, when perhaps a fatal hemorrhage will ensue. Hence the importance of keeping the patient perfectly quiet, and not allowing any nourishment except sweet milk and animal teas, that will be taken up by the stomach and duodenum, leaving as little as possible of effete material to go into the ulcerated bowels. I never give quinine in typhoid fever during the active and high temperature, but use it in the beginning of and during convalescence when necessary. In some cases there is retention of urine, and the catheter is required to empty the bladder. When there is tympany caused from an accumulation of gas in the bowels, turpentine stupes and warm poultices applied to the abdomen will comfort the patient some, and, an enemata of warm water, with a few drops of carbolic acid will cause an evacuation of the larger intestine, and thus relieve the tympany,

When, from hemorrhage or other cause, I do not want to move the bowels, then this accumulation of gas may be relieved by passing a tube or hollow bougie up the rectum. The tympany should not be allowed to go on unnoticed, for fear it distends the bowels too much, and cause perforation and peritonitis. When there is any evidence of heart failure, I give digitalis or alcohol. Alcohol I consider a splendid remedy in typhoid fever. It furnishes combustion for the system and prevents the waste of tissue, keeps up the hearts action, and stays asthenia.

In the last part of the first week and during the second, when the active fever is on, the patient with a wild, boisterous delirium, tossing from one side of the bed to the other, can be quieted and relieved by bathing the hands and arms, feet and legs, in warm water, with cold applications to the head, assisted, if necessary, by antipyretics and antispasmodics; while in the low, murmuring delirium, from exhaustion and waste, with a tremulous condition of the muscular system, tongue dry and shaky, edges red, with coma vigil, the patient requires a stimulating treatment, and then it is that whisky comes in as master of the situation, encourages the vital forces to action, and points to resolution and convalescence. Whiskey, combined with sweet milk, given to the patient will preserve the milk and allow the enfeebled stomach to perform digestion at leisure; when, many times, if the nourishment is given alone, the milk will, perhaps, ferment and act as a foreign substance, cause vomiting and other unpleasant symptoms.

I have never used cold-water treatment, and I do not think it could be carried out in private practice. I know there are a great many new remedies and plans of treating typhoid fever, and I am for advancement, but for advancement with discretion.

I consider that we have no specific treatment in this disease, so the treatment will continue to be discussed. Watch the patient closely, keep the fever within the bounds of reason, nourish, and sustain; and when we see the storm arising, whether in the bowels, lungs, or brain, exert our efforts in that direction, and in the great majority of cases we will succeed in landing our patient in a port of safety. The discharges of the patient should be immediately disinfected or burned. To burn them would be better.

There is another dangerous time in typhoid fever, and that is "after the ball is over, after the dawn of day"—after convalescence has been declared, the patient or nurse disregards the instructions of the physician, and is allowed to eat too much, taxes the

stomach above what it can bear, fills the intestines with fæces, or half assimilated material presses against the weakened places of recent ulceration, which are unable longer to hold intact, and perforation, peritonitis, and death are liable to occur. I remember, a few years ago, a case in a mulatto girl, who had for four or five days been without fever, ate a pickle, which set up a desperate peristalsis and griping of the bowels. The girl was wild with delirium, and died the second day. A post-mortem examination revealed perforation and peritonitis. So I am always very particular in instructing the patient and nurse of the danger in allowing too much nourishment, especially of any undesirable kind, until convalescence is far advanced.

DEEP HYPODERMIC INJECTION.

L. L. AMES, M.D., RICHLAND, KANSAS.

Volumes have been written on hypodermatic medication, and a large number of remedies have been used hypodermically. No intelligent physician feels himself fully equipped for practice without his hypodermic syringe ever ready for use.

Although the instrument is so common and so much has been written on this method of medication, I find but little written regarding any but one method of using the instrument, that is, the one described by Dr. Ashhurst (*International Encyclopedia of Surgery*, Vol. 1, Page 524). He says:—"The operator pinches up a fold of integument between the thumb and first two fingers of his left hand, and, holding the charged syringe firmly in his right, quickly thrusts the point of the needle into the superficial fascia parallel with the fold. The needle should be carried fully two centimeters (three-fourths of an inch) into the tissue, and its point should be moved about to make sure that it is not in the deeper layers of the true skin. The contents of the syringe should be forced out slowly, after which the needle should be quickly removed, and the puncture closed by the pressure of the finger for a few seconds, to prevent the escape of any of the fluid and to arrest the slight bleeding which sometimes follows the operation."

Gross and others give similar descriptions as to the use of the instrument. The almost universal method seems to be to insert the medicine immediately under the skin into the superficial fascia.

In the REPORTER, Nov. 3, 1894, Dr. G. M. Hammond, of New York, recommends the deep injection of morphine for sciatica. In this article, he recommends depositing the medicine deep in the muscle, as the best method of injection. In a few cases like the above we find the term "deep hypodermic injection" used. Experience teaches me that this is the best method of using the instrument in all instances, for by carrying the needle well into the muscle we avoid many of the disagreeable consequences of the superficial method.

For many years I practiced the method as described by Ashhurst, and so long as I practiced that method I had trouble. To illustrate my experience with many cases: I was called to some nervous, fidgety woman. I found it necessary to give a hypodermic injection. I gave the injection in the usual manner. A swelling as large as half a hickory-nut arose where the medicine was deposited under the skin. The patient looked at her arm, and at once exclaimed, "Oh, look there Doctor! See what you have done. You have made my arm all swell up. You shall not stick that thing in my arm again. I know there is no need of it and now my arm will be just awful sore!" And, often, the arm would be very sore. I went back the next day to find a large blue spot, the size of a dollar, where the injection had been made, and there was soreness for several days. I have seen several such lumps in one patient at the same time. In fact I,

avoided the use of the hypodermic syringe where possible, on account of the disagreeable after effects! Again, when the solution is deposited too superficially, the slightest pressure will force out the medicine.

On account of the many bad results following the superficial method, I began to make deep injections. My needle measures one, to one and one-fourth inches. I select a point, usually the back of the arm, where there is no danger of veins or arteries, and pass the needle full length into the muscle. When I withdraw the needle, I never stop to place my finger over the point of insertion. No blood or medicine ever follows the needle. There is no swelling where the medicine is deposited. The pain of insertion is no greater. There is no discoloration of the skin. Seldom does any soreness follow, even repeated injections in the same locality.

In the five years I have used this method, I have never seen an abscess, or any bad results, and I get the effect of the medicine much quicker. I never pinch up the skin, or wriggle the needle around to see if I have it in. I send the the needle deep into the muscle, turn the medicine loose, and it takes care of itself.

A few months ago, treating an old lady, I found it necessary to give from one to five injections daily (in the twenty-four hours), for many days. There were weeks that I used the same arm from one to three times daily, and I had little or no soreness, and no discoloration. One day I was away so I could not attend her, and a brother physician was called in. He gave the injection in the usual manner. When I returned the old lady was very angry with the doctor, because her arm was "all black" where he had given the injection. She said; "He just didn't know anything, and I will not have him in the house again." I had hard work to make the old lady believe the doctor had treated her properly.

I use Park, Davis & Co.'s hypodermic tablets usually, though any standard preparation will do. I use clean water, hot to the boiling point and allowed to cool, to dissolve the tablet in. Usually, I heat the water in a teaspoon over a lamp.

I do not wish to be understood as criticising Dr. Ashhurst or others, who have given instructions for the use of the hypodermic syringe, but five years of almost daily use of the instrument, has proved the deep injection always the most satisfactory to me.

Brewers' Yeast in Diabetes.

At the French Congress of Internal Medicine recently held at Bordeaux (*Sem. Med.*, August 21st) Cassaet stated that he had obtained good results in three cases of diabetes by the administration of brewers' yeast in a daily dose of 50 grammes, although the administration of the substance could not be continued sufficiently long on account of the practical difficulty in summer of preventing acetous or putrid fermentation. It was taken readily by the patients. The immediate effect was the expulsion, during the few minutes following its absorption, of a very large quantity of gas by eructation; then in the course of the first or second day extremely fœtid diarrhœa with abundant gas occurred. After a few days tolerance was established, and the patient felt better than he had done for a long time; his general state improved, his appetite returned; his strength increased, and pain diminished. The weight of the three patients in whom the treatment was tried increased three, five, and eight pounds respectively after the yeast had been administered for a fortnight. The gain in weight was particularly remarkable inasmuch as one of them was phtnisical as well as diabetic, and another had diabetes of the gravest type. On discontinuing the treatment loss of weight was soon observed again. As regards strength as tested by the dynamometer an improvement from 12 to 20 kilos. was noted in the right hand, and of 17 to 22 in the left. As regards the urine the urea remained stationary or increased, and the proportion of sugar diminished, in one case by three-fourths, and in another by two-thirds in the fortnight.

COMMUNICATIONS.

DEATH BY THE ALTERNATING CURRENT.*

DRS. EDWIN J. HOUSTON AND A. E. KENNELLY.

Having observed a communication in the *Compes Rendus* of the Academie de Sciences, from M. D'Arsonval in June, 1894, respecting a case of apparent death produced by accidental contact with an alternating current circuit, and the means successfully adopted for reviving the person shocked, we desire to enter our earnest protest against what we regard to be the unwarranted conclusion that Dr. D'Arsonval has apparently drawn from this case, taken in connection with his previous experiments with animals. While we do not for a moment doubt the correctness of the general observations in the case, nor that similar cases may frequently arise in practice, and while we are desirous of fully accrediting to Dr. D'Arsonval the great value of the suggestions made by him, namely, that a person shocked by electricity should be treated as a person drowned, a treatment which we would indorse as being proper to employ in all cases where even the shadow of a doubt exists as to the actuality of death from electricity: yet we desire most emphatically to call in question the correctness of the general conclusion reached by Dr. D'Arsonval, that because in this particular case resuscitation was possible, that all cases in which no marked lesions or evident destruction of the tissues are effected, death is only apparent and resuscitation possible.

In the communication referred to, Dr. D'Arsonval arranges all cases of the passage of powerful alternating currents through the human body into two classes, viz.:

1. Where lesion or destruction of the tissues is produced. (Disruptive and electrolytic effects of discharge).

2. Where the excitation of nerve centers takes place, producing arrested respiration and syncope but without material lesion.

In the first case Dr. D'Arsonval claims that death is absolute; in the second, on the contrary, it is only apparent. As far as we can learn, this classification, as far as human beings are concerned, is based on the actual observation of but a single case. This case he appears to believe sufficiently convincing to warrant the conclusion that all cases in which alternating currents pass through the human body without producing evident lesions are capable of resuscitation.

Further, Dr. D'Arsonval appears to believe that the evidence in this case is sufficiently convincing to warrant the monstrous statement made in his communication that even in the electrocutions in the State of New York, death is not produced by the current, thus leaving the public to infer that it has been produced by the knife of the surgeon, in the autopsy which always follows.

In view of the importance of the subject, we append a translation of the facts described in Dr. D'Arsonval's communication as being those upon which he apparently bases his opinion:

"The following is a statement of facts communicated by MM. Picou and Maurice Leblanc, two well-known electricians who were eye witnesses of the accident and who rescued the man to whom the accident occurred. When the accident happened at Saint Denis, the electrometer at D'Epinay connected between two of our three wires showed 4,500 volts, and an ammeter introduced in one of them showed 0.7 ampere.

"At the spot where the accident occurred the three wires were carried by insulators supported by a bracket on the wall about 6 meters above the floor. The man who was shocked was seated astride the lowest bracket holding one of the conductors in one hand. He had

* Read before the American Electro-Therapeutic Association, New York, September, 1894.

with him a telephone wire which he was about to place in position. This wire rested on the bracket on which the man was seated and came in contact with another of the three wires. The circuit was closed through the man, entering by one hand and leaving by one buttock in direct circuit. He was, therefore, subjected to the full pressue of 4,500 volts at a frequency of about 55 periods. It is difficult to say precisely how long this circuit was maintained, but certainly for several minutes. The short circuit established set up sparks at the commutator of the D'Epinay apparatus. The operator who attended it believed that an accident had happened on the line and telephoned to La Chapelle to stop. All this represents a sufficiently long time. We were leaving D'Epinay at the moment and we were already on the train when informed of the accident which had just happened. About a quarter of an hour afterward we arrived at the Saint Denis. The man was still sitting on the bracket and gave no sign of life. There was considerable difficulty in bringing him down and this operation took at least half an hour.

"Following your advice we practiced artificial respiration by manipulation of the arms and, at first, without result. I then forcibly opened his mouth and pulled forward his tongue. His lungs then operated almost immediately. In two hours he could speak. He was burned on the right hand and on the buttock. He is now well. . . .

"Several days ago they wrote to me again; the injured man is progressing favorably. It is to be observed that no particular trouble due to the passage of the current through his body has been manifested. No attention has been necessary, except to his burns."

In the first place we desire to point out that the pressure alone of 4,500 volts mentioned is without significance, unless it is taken in connection with the current actually passing through the subject under such pressure. We would also point out the fact that a marked difference exists between cases of the application of the alternating current, as employed in electrocution in the State of New York, where the current is deliberately conducted through the body for the purpose of killing, and such cases of accidental contact as that referred to by D'Arsonval. Here, assuming the correctness of the ammeter reading quoted, namely, that a current of only 0.95 ampères was passing, the resistance of the body could not have been less than 6,000 ohms. The resistance of the body between the electrodes used in the electrocutions of New York, *i. e.*, one on the head and the other on the right calf, is sometimes as low as 200 ohms, and usually not more than 300 ohms, the current strength employed being from 5 to 8 ampères, say seven to ten times stronger than that which is stated to have passed in the case mentioned.

In view of these facts we submit, that, in our opinion, Dr. D'Arsonval is entirely unwarranted in drawing the general conclusion already alluded to. Unwilling, however, to base our opinions on mere surmises, we arranged for a series of experiments on dogs in our laboratory, under conditions in which actual facts only were admitted. Being unwilling to leave to our own judgements the question of the actuality of death, we were fortunate in securing the co-operation of the following eminent members of the medical profession in Philadelphia, namely:

Dr. Judson Daland, Instructor in Clinical Medicine, University of Pennsylvania; Dr. G. G. Faught, general practitioner; Prof. L. Webster Fox, Professor of Ophthalmology, Medico-Chirurgical College; Dr. E. Laplace, Professor of Surgery, Medico-Chirurgical College; Dr. William L. Zuill, formerly Professor Veterinary Medicine, University of Pennsylvania.

One of the observers kept the time of all observations; a second recorded all the observations with the time of their occurrence; a third observed the reading of the Weston alternating current voltmeter placed across the supply mains; a fourth observed the reading of the alternating current ammeter placed in circuit with the dog. The alternating current employed was from the street mains making about 130 cycles per second, and at a pressure of about 1,250 volts, reduced in some cases through a 1.5 K. W. transformer to about 700 volts. Four good-sized dogs whose weights were noted were success-

fully subjected to the current and the following observations made:

Observations 8.30 P. M., September 18, 1894. The contacts in these experiments were made by cotton waste, thoroughly soaked in an aqueous solution of common salt of density 1.055, the waste being bound to the part with copper wire to which the electric terminals were attached.

Dog No. 1. Weight 31.5 pound. Contact points right forefoot, (carpus) and left hind foot. Resistance of dog between electrodes 20,480 ohms. Effective alternating voltage 1,250. Circuit closed through animal 8.35 to 30 to 8.35 to 50, *i. e.*, maintained twenty seconds. On the closure of one of the first of the two switches in the dog's circuit, the dog experienced some sensation evidenced by excitement and yelping. This was subsequently ascertained to be caused by leakage through the substance of the slate base of the remaining switch and was found to amount to approximately 2 milliamperes. On closing the second switch about three seconds after the first, there was instant rigidity of the the animal, the dog leaping forward about a foot, the body balanced on the hind legs as in standing, the fore legs apparently flexed, the plunging movement bringing the snout to the ground first, the animal then falling on its side. Dog remained in a state of tetanus till circuit opened. No cry made. Some smoking at point of contact, but no burning. 8.36 P. M., muscles relaxed except in right fore leg where marked rigidity remained. Flesh hot to the touch in the legs which had carried current; 8.37, no evidence of cardiac movement under stethoscopic examination; 8.44, contact points on body still show marked elevation of temperature. 8.45, surface temperature of hind leg (left) 122 degrees, F., 50 degrees C. The rhythmic tractions of the tongue as advocated by Laborde of Paris, were continuously made from 8.45 to 9.43 without effect. It was the opinion of all present that death was instantaneous and painless, and that resuscitation was impossible.

Dog No. 2. Weight 26.5 pounds. Evidencing great fear. Rectal temperature 103.1 degrees F., 39.5 degrees C. Contacts right fore and left hind leg near carpus; 9.05 to 30 P. M. Resistance 17,430 ohms. The voltage 690 before closing circuit, 685 during closure; 9.08, circuit closed for twenty seconds through dog.. Current through dog 1.0 ampere steady. Immediately on closure the animal fell on his side without forward movement in condition of tetanic rigidity. Opisthotinotic curve of back. No smoking of contacts. Death evidently instantaneous and painless; 9.11, body removed to examining table; 9.12, no cardiac movement by stethscopic examination; surface temperature of body evidently raised to touch. Optic nerve pale pink; blood vessels full (normal condition in dog stated to be veins prominent, arteries thin and narrow). Corneal epithelium wavy; pupils dilated to fullest extent. Iris almost disappeared. 9.16, rectal temperature 104 degrees F., 40 degrees C.; 9.17, veins on retina have shrunk to a hair line. Optic nerve growing brownish; 9.20, surface temperature, right axilla, 104.4 degrees F. (40.2 C.); 9.34½, optic nerve pale. In the opinion of all present death was instantaneous and painless. An attempt to resuscitate it being considered hopeless.

Dog No. 3. Weight 44 pounds, short hair; 9.23, optic nerve bright pink, pupils dilated. Blood vessels full and easily discerned; 9.35, rectal temperature 102 degrees F. (39 degrees C.); contacts made one on each fore leg above carpus; 9.40, stethoscopic examination of heart shows rate 60 per minute; 9.45, resistance 31,820 between electrodes; 9.47, voltage 700, during application of current, steady at 690; 9.48, circuit closed and current maintained for ten seconds. Current steady 1.8 ampere. Immediately on closing the circuit the dog which had been lying quiescent on one side was thrown into a tetanic state, except a slow waving motion of the left hind leg which rapidly ceased; 9.49 P. M., deglutitious movements. Corneæ insensible. No cardiac movement. Apparent respiratory movements; 9.50 P. M., deglutitious movements still present, flexion of head, no cardiac movement. Respiratory motion ceased; 9.53 P. M., resistance between electrodes 1,207. Rectal temperature 102 degrees F. (39 degrees C.) Rigidity absent. No perceptible surface eleva-

tion of temperature; 9.55, optic nerve pale, with complete change of color. Arteries disappeared; veins growing thinner; 9.55, 30, veins thin as hairs, completely emptied in spots and presenting a beaded appearance; 9.56, optic nerve grayish pink.

In the opinion of observers, death was painless and took place within a minute after the closing of the circuit; also that movements after opening circuit were reflex and spinal. Immediate observation after opening circuits failed to show any evidence by a stethoscopic examination of cardiac movement, nor were they present at any subsequent time. It was also believed that it would be impossible to resuscitate.

Dog No. 4. Short hair, 29.5 pounds. Optic nerve pink, blood vessels full. Contact made by cotton waste pads soaked in saline solution pressed into ears with ear flaps bound over them. Heart rate 140 per minute; 10.11, resistance between electrodes 1,200 ohms; 10.13, voltage 700; 690 during application of current; 10.14 P. M., circuit closed for five seconds. Much smoking and slight charring of hair at electrodes. Current not accurately measured owing to brief interval of application, but estimated 6 amperes. Progressive rigidity. Rectal evacuations. 10.15, irregular movements of extremities somewhat resembling those made in walking. Most marked on left side. Tail wagging; 10.16, same, more marked; 10.16 30, eyes rotated upward and inward, moderate muscular rigidity of body; beginning to breathe; 10.17, horizontal symmetrical oscillation of eyeballs. Pupils contracted; 10.17 30, movement of eyeball gradually ceasing; 10.18, movement of eyeballs ceased; 10.19, confused heart sounds indistinguishable; 10.19 30, heart sounds now stronger. Convulsive movements of eyeballs; 10.20, heart rate 108, intermitting every third or fourth beats; 10.21, respiration 28 per minute; leg apparently responds to touch; 10.23, Dr. Zuill states that in his opinion the animal is not suffering, but is conscious. It lies perfectly quiet; the respiratory movements good in volume and fairly regular; 10.28, cornea reflex present. Pulling the tail is followed by movements in that appendage, (possibly reflex); 10.31, no respose to sensation, such as pin pricking; 10.32 30, rectal temperature 103 degrees F. The animal lies in a position of full extension; 10.34, attempts voluntary movements to slight extent of disturbance; 10.35 30, same, more marked, but unaffected; 10.39, evident response to disturbing touch. Pupil markedly contracted; 10.40, contraction of pupil as persistent as when observed at 10.17. Hearing evident, responds by muscular movements to sound of a table dragged across the floor; 10.42, placed on his feet with difficulty; finally attempts to stand, but staggers and falls. Co-ordination wanting and improving every second; 18.43, condition apparently dazed, respond to whistle and call. Stands with difficulty and wags tail momentarily. No evidence of suffering. No sound or whimpering; 10.44, condition apparently stuporous, does not respond readily to call or whistle, but evidently notices both; 10.45 30, again responds distinctly to call and whistle. Standing with some effort and wags tail. Apparently conscious. Gives no evidence of suffering, except possibly slow to-and-fro movements of head may be due to pain in it; makes no sound or cry; 10.46, administration of chloroform; 10.47, unconscious with deep inspiration; 10.47 30, stertorous breathing. Hard, rapid, irregular and feeble; 10.40, heart stopped. Relaxation of sphincters. Dog dead.

It was the unanimous opinion of the medical gentlemen present that death was absolute and resuscitation consequently impossible in the first three cases. In the third case, however, reflex movements exhibited themselves and although the heart had ceased to beat when the first examination was made, death was not reached until about one minute from the time of closing the circuit; also that in the fourth case where a much stronger current under 700 volts pressure passed through the head during five seconds, the loss of consciousness was instantaneous and complete, but the animal revived without the aid of artificial respiration.

We desire to acknowledge our indebtedness to the able scientific observers who aided us in this investigation, and consider ourselves fortunate in having obtained for this purpose the co-operation of men of such acknowledged emi-

nence in their respective specialties. We hope shortly to be able to make more complete investigation of the conditions under which absolute death follows the passage of powerful alternating currents.

We believe that the following conclusions may fairly be drawn as the result of these experiments:

1. That the passage of a sufficiently powerful alternating current through the body of an animal is followed by instantaneous, painless and absolute death.

2. That, consequently, where electrocution is properly carried out, there is not even a remote possibility of subsequent resuscitation of the criminal.

3. That in case of accidental contact, where the current passing is not excessive it is quite possible that death may be apparent only, and that the method of artificial respiration suggested by Dr. D'Arsonval should invariably be followed.

It is a remarkable fact that in the last experiment where the strength of current was much greater than in the previous instances and passed directly through the head (very trifling leakage only being possible over the surface of the skin) the effect of this current was much less upon the vitality than in the preceding cases.

INDICATIONS FOR TOTAL HYSTERECTOMY.*

AUGUSTUS P. CLARKE, A.M., M.D.,† Cambridge, Mass.

Total hysterectomy should be had recourse to in cases rapidly growing interstitial fibroids, or in cases of large subperitoneal growths developing from a broad sessile base. The operation is indicated, not only from the hemorrhage which they occasion, but also from the pressure which may take place upon the surrounding parts, and from the obstruction they may produce in the vascular tissues in the abdominal and pelvic organs. Palliative measures of treatment, including employment of electricity, may be helpful in overcoming hemorrhage, but the adoption alone of such a course of procedure must necessarily prove disappointing. The importance of resorting to total hysterectomy will be appreciated when the real history of the degenerative processes of such tumors has been more carefully considered.

If a large and rapidly growing fibroid should take on a retrograde process, either spontaneous or through the influence of regular and systematic treatment by electrolysis, or otherwise, the positive ultimate dangers arising from the presence of such a growth will be far from being wholly removed, for in such a stage, when the patient is seemingly improving, the morbid growth may afford a culture chamber into which other disease cells may migrate and then undergo a malignant degeneration. In such a condition, total hysterectomy is the only expedient that will afford a complete and permanent cure. A fibroid tumor developing in the interstitial and parietal portions of the uterus may so extend as to involve the entire body of the organ, overlaping and inclosing in large measure the adnexa, and taking a downward course, include and bury the cervical structures also. In this condition the morbid growth involving the uterine structures may elevate itself from the lower pelvic cavity and thus afford a greater facility for removal through an abdominal section.

The removal of a fibroid should not be deferred because it appears, or is first observed, at or near the menopause, for it is not infrequent for such a tumor to continue to develop long after the occurrence of that period, and it may assume all the phases and present all the untoward results that are attendant on one that has had an earlier beginning.

Treatment of fibroids by a resort to

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salpingo-oöphorectomy, to say the least is of doubtful utility; this method for awhile may give seemingly beneficial results. When it does so, it is evidently because the growth is principally sustained by the ovarian artery; in other cases the results following this method are so unimportant that an operation would seem to offer but little advantage. There are undoubtedly many cases of fibroids in which the nourishment is at certain periods of their growth derived chiefly from the uterine artery. There are also cases of uterine myomata, in which the physical condition of the patient will not warrant a resort to hysterectomy. In this class of cases the method adopted of ligating these vessels has proved to be of considerable service. With our advanced knowledge, however, of the pathology of these neoplasms, and with our increasing experience and achievments in abdominal surgery, we should not advise a woman who is comparatively free from disease, except from the effects which a fibroid may have occasioned, to rest content with merely submitting to such an uncertain surgical measure.

A nodular fibroid of the slower growth should not be regarded with unconcern, for the pressure that may be made by the mass upon the surrounding parts, and especially upon the ureters, may cause chronic edema and finally contracting kidney, as did once occur in one of my own cases, in which the autopsy showed that had the growth been removed the renal lesion would undoubtedly have been avoided and the patient's life been saved. In this connection it might be remarked that the effects of pressure are to be considered, aside from the malignancy, as among the most baneful influences that are attendant on the presence of uterine and ovarian tumors. Uterine myomata in all their various stages call for removal; this should be effected as early as possible. In certain cases the curette can be advantageously employed; if this method is unsuccessful, hysterectomy should be the next surgical expedient. In one case in which a multilocular fibroid appeared, there was but little enlargement of the uterus. Hegar's method for removal of the uterine appendages was performed by a distinguished surgeon resident in another State; the patient, however, did not recover until after the lapse of six years, when she submitted to total hysterectomy.

The ordinary methods of treatment of the more extended forms of adenoma frequently prove unavailing. The study of the pathology of adenomatous formations shows that the hypertrophy of the glands of the lining membrane often extends throughout the entire cavity of the mucous lining. When a uterus has once been affected with this kind of morbid process and the condition does not speedily yield to curettement and to other milder measures of treatment, a more radical course should be instituted. Total hysterectomy offers the best advantage for permanent relief. After sarcoma in any part of the uterine system has been suspected to exist it should be an indication for action; its malignant nature and its unfavorable tendencies when viewed according to the present light afforded by the pathologic history is unquestioned. As in the early stages of cancerous disease, before the para-uterine tissue has become involved in the morbid process, so in sarcomatous development partial removal by the supravaginal method will prove inadequate; nothing less than total ablation of the uterine tissue, including the entire cervix as well as the fundal portion, should for the most part be deemed sufficient for a cure.

The question has been asked, should hysterectomy be restored to for ovarian tumors? In answer to this it may be stated that carcinoma appearing in the ovary is almost always dependent upon the disease previously occurring to some extent in the uterine tissue. Not long since I was called to a case in which the adnexa had a year before been removed for what then appeared to be a malignant condition of those parts. Since that time the uterus and the parametrian tissue had become extensively involved. Had total hysterectomy been carried out at the time of the first operation, before the cancerous elements had advanced, the patient could undoubtedly have been saved. According to later observations and experience, sarcomatous developments occurring in the ovary should be promptly removed;

this can best be effected by total hysterectomy. When papilloma and fibroma occurring as ovarian tumors are recognized at an early stage of their existence, and before they have extended downward to the neighboring tissues, they should be thoroughly and promptly removed, even if it has to be done at the sacrifice of the uterus and its appendages.

It should be here stated that carcinomata and sarcomata in all their various forms call for immediate and thorough removal as soon as a diagnosis of the condition can be made. Experience, however, shows that the results following the removal by hysterectomy of a sarcomatous growth, when the operation is undertaken in a late stage of its existence, will prove to be more satisfactory than will those that may be attendant on the removal, by this method, of a cancerous mass at a similar stage of its existence.

Total hysterectomy is absolutely necessary for uncontrollable prolapse, after anterior and posterior colporrhaphy and other plastic operations have been repeatedly tried, but have failed to produce permanent relief. In such cases the vaginal method is the operation to be preferred. Total hysterectomy is the only safe surgical expedient to be adopted in cases of hemorrhagic polypi which present suspicious microscopic appearances after removal, and which leave as a result an enlarged uterus, as may be determined by palpation or by the sound.

Hysterectomy is called for in ectopic pregnancy; in such cases the hemorrhage can be more safely controlled, and the patient is enabled to make a more rapid recovery than by the other methods of procedure. This method of treatment should be undertaken in ovarian abscess, in pyosalpinx, in old inflammation of the appendages, in a post-clinical severed uterus which has been productive of pain and has been a source of disablement. The operation should be resorted to in all suspicious diseases of the adnexa and in cases of large cysts, as well as in papillomatous developments and in otherwise irremovable cysts and intraligamentous fibroids and tumors of the broad ligaments.

Later experiences show that total hysterectomy can be accomplished with as little danger as may be attendant on many other important surgical measures. When properly performed, there is often but little tenderness left about the vicinity of the broad ligaments. When done in ectopic pregnancy, in ovarian abscess, in pyosalpinx and in purulent liquifaction of a uterine fibroid better drainage can be established. On the other hand, when the uterus or a portion of it is left, the condition resulting is liable to be followed with many complications, with uterine catarrh, malignant degeneration, certain neuroses and with other sequelæ of a painful or of a clinically depressing nature.

Another advantage total hysterectomy insures is that the posterior and anterior folds of the pelvic tissue can be brought together and united by suturing so as to secure better results than when other surgical methods are employed. In bringing these folds together after the uterus has been totally removed, their margins can be turned outward and downward; this arrangement of the parts will thus practically invest the operation with all the advantages that can be secured by the choice of the extraperitoneal method.

I have already stated that the vagina is the natural avenue through which an uncontrollable prolapsed uterus may be removed. This avenue for removal should be especially chosen when the uterus is not enlarged, or when the condition of prolapse is not complicated with the presence of a fibroid or other tumor. In such cases the technique of the operation may not be as difficult to carry out and the patient may not be exposed so long to the influence of the anesthetic as by other methods. The consequent shock will, therefore, not be as great. The same method may occasionally be recommended when hysterectomy is indicated for a cancerous affection which has not extended beyond the cervical portion of the uterus. In those cases, however, of cancer in which the fundus in involved, total ablation of the uterus can best be effected by the vagino-abdominal method. I am not unaware that statistics have been brought forward to show that the adoption alone of vaginal hysterectomy

when undertaken by certain operators has yielded exceptionally good results. In all reports in which such records have been estabiiahed by work accomplished on a large number of cases I have often felt that the many favorable terminations were, after all, but mere coincidences, or that only those cases for operation were selected that would be advantageous to the showing.

CORRESPONDENCE.

NEWS FROM ABROAD.

BORDEAUX, August 13, 1895.

DEAR DOCTOR RECKEFUS:—This is a city older than the days of Cæsar, for you remember he refers to it in his Commentaries, in which your reading is fresher than mine, for I doubt whether I could quote correctly a single sentence unless possibly the first, beginning, "Omnis Gallia." While of course the greater part of the city is new, one will find here and there among the buildings memorials of the past that have endured through many centuries. For example, on Sunday, I went to the church of St. Michel, which was founded more than a thousand years ago, though rebuilt in the fourteenth century.

The people of Bordeaux compared with those of Paris, seem stronger, healthier, and of better development. This difference I attributed to the purer air, air from mountain and ocean, for the Pyrenees and the Atlantic are not distant; to the less poverty, and the less crowding of the people, for the population of Bordeaux is only a little more than 250,000. Professor Budin, whose kindness to me in various ways I gratefully acknowledge, with whom I conversed on the subject, told me that an important factor was difference is race.

Passing from people to lower animals, I think you would wonder at the large number of donkeys in use here, and at the heavy loads these little creatures draw. You would wonder too, at the great brown goats, with udders and teats that a small Jersey cow might envy, these goats delivering their milk from door to door, a sure way of securing fresh and unadulterated milk.

The hundreds of acres occupied with grape vines, through which one passes in approaching Bordeaux, suggests that the production of wine is one of the greatest and most important industries of this part of France. I suppose Bordeaux wine deserves its high rank, but as I am not a connoisseur, and rarely taste wine, I will not venture an opinion. Indeed in general as to such beverages, I might reply as Diozsim did when asked what kind of wine he liked best, 'Somebody else's.'

But all the land is not given to the culture of the grape, for I saw many fields of wheat, of clover, of rye and oats, and occasionally a patch of Indian corn; but the last was so poor that an Illinois farmer would not let it cumber the ground. Generally oxen or cows seemed to be used in ploughing, except in the vineyards. One of the curious facts observed, the same is universal in Bavaria, was that the so-called ox-yoke was not seen, but a broad band passed over the forehead of the animal had connected with it traces which were attached to the plow. The fact is that the animal pulls by pushing. The obvious explanation doubtless is that the ox is headstrong, but if you can suggest any better, I will not insist upon mine.

Coming to Bordeaux to attend a medical congress, you may think it strange that one of the first places I sought, as soon as I knew enough of the city to find my way about, was the burial place of Montaigne. This is found in the basement of a handsome building occupied by the Faculties of Theology, Science, and Literature of the University. In the vestibule there is a reclining statue of the great author, and the inscription, very brief, and of course in Latin, gives his name as Montanus. It

seemed to me that he was indeed one of the few mountains rising in the broad territory of literature. I have been for many years an admirer of his Essays. In them I find much of classic knowledge. Plato, Plutarch, and Seneca speak again through his pages. Nay not only past knowledge comes afresh in his sentences, but in some thoughts he has anticipated Spencer, for example, and I doubt if Addison would have written as he did had not Montaigne preceded; and I find too, much of practical wisdom and many of the graces of rhetoric.

I will not justify my introduction of Montaigne in this letter, which may find its way to a medical journal, by the fact that he was alleged to have been an eleven months' child, and therefore a prodigy; but justification chiefly is given by my hope that some doctor to whom Montaigne's Essays are as yet an unknown book, may be led to their perusal, thence having similar pleasure and profit to my own. Further, I believe every doctor ought to have a liberal culture, and should know something more than so-called professional works. He will be wiser, better and happier when enriched by the large stores that Montaigne brought from Greece and Rome, and by accepting the spirit of his teaching, peace, gentleness and benevolence among men. But some one reminds me that Montaigne was an avowed sceptic in medicine. Let us accept this scepticism as wisdom, for every wise man to-day could not accept the medical teaching and practice of the sixteenth century. One day we may acknowledge that medical progress owes a debt to the scepticism of Montaigne scarcely less than it does to the raillery of Moliére. Some one of our American medical scholars, like Dr. Thomas C. Minor, of Cincinnati, might give an admirable essay upon the question suggested.

Several congresses were in session at Bordeaux the same time. For example, one for the advancement of the sciences, another for the study of the romance languages, one of medicine, and another of gynecology, obstetrics and pædiatrics. Probably there was an average membership of the two last of 250 members each. A member of a congress was a congressist, plural congressistes; possibly our language needs the word congressist. Referring now to the congress last mentioned, of course the membership was chiefly French, but there were also several from Belgium, Switzerland, Spain, and Italy, a few from Russia, at least one from Holland, but none I think, at least no one of note, from Germany, and none from Great Britain. The only language used was French and my paper was translated into French, and read by Dr. Budin. The congress began on the 8th, and was continued until the 14th; two days were, however, given to excursions, one on Sunday to Biarritz and Dax, and to-day there is an excursion to Archacon; of neither did I avail myself. The morning sessions were of the several sections separately, the time occupied being from nine to twelve. In the afternoon the several sections met together, the session lasting from two to five or six o'clock. The president of the congress was Tarnier. I wish it were in my power to give you an accurate picture of this great teacher. You would hardly think, from his personal appearance that he was a doctor, but would imagine that he was an eminent lawyer, judge, or senator. He is large, somewhat portly, dignified, but at the same time his eyes and face show that he enjoys humor; his mouth is quite large, his hair light brown, and he is not at all bold, shows none of what Jeremy Taylor called undressing for the grave. He is now sixty-seven years old, but shows unabated vigor in movement, in thought, and speech. He is one of the most impressive speakers I ever heard, and at the same time he seems one having a reserved force. Let me remark that I have never been in a medical society in which I have heard better speaking than in this congress, nor have I witnessed more grace of oratory, more force of utterance. Among those whose manner struck me as notably excellent was La Torre of Rome. He is tall, not less than six feet, well proportioned, a clear, musical voice, very graceful and correct in his gesticulations, and forcible in his utterance. When you first see him, his peculiar complexion, not so much an olive hue as dark yellow seems suggestive of possible jaundice, and your sympathy may be excited by the supposed hepatic disease. I am told by one of my friends in the congress that La

Torre's French would not escape criticism, but fortunately my knowledge of spoken French is not sufficient to abate my admiration by a recognition of these defects. Budin has the air of a scholar, and the manner of a teacher; no one was listened to more attentively, for the hearer was sure to learn something new from him. Dr. Lefour, of Bordeaux, the general secretary of the congress, is also to be ranked among the able speakers. My friend Dr. Cordes, of Geneva, is most instructive, and always secured the attention of the members. Vulliet, also of Geneva, is impressive by his personal appearance, and effective as a speaker. Treub, professor of obstetrics and diseases of women in the University of Leyden, is a typical Hollander in personal appearance, deliberate in his ways and speech, and showing none of the fervor and vivacity of Frenchmen, Italian, Spaniard, or of the Swiss. Eustache, whose contributions to obstetrics and diseases of women I have always read with great interest, does not present the personal appearance I expected; he is tall, his head by no means corresponding with his height, his form somewhat ungainly, and as a speaker several members of the congress were his superiors. Professor Crouzot, of Toulouse, is a man whose appearance and manner impress one most favorably. He has recently invented a traction forceps, which he was kind enough to show me, giving a complete explanation, an instrument that seems to me from this cursory examination, the only real improvement upon the axis-traction instrument of Tarnier.

There were so many subjects brought before the general congress, and before the individual sections, that even their enumeration would be tedious. Undoubtedly there were some papers of great value presented, but I believe that the congress lasted too long, had too many sections, that is two too many, when there should have been only one, and that fewer subjects should have been presented.

I am writing these lines while most of the members of congress are starting upon the day's excursion, and just before I begin my journey to Berlin. You know it was my intention to go from Bordeaux to Geneva, and from there to Munich, then to Berlin. But a letter received by me from my kind friend, Professor Martin, informs me that he will soon leave for Carlsbad, and I cannot fail to see him, so that I proceed to Berlin, quoting Cæsar, *summa diligentia*, translated, as you know by one of the most brilliant Irish writers, on the top of the diligence. When in Berlin, I may write up some of the discussions in the congress, or give an abstract of a few of the papers, unless perchance I find some more interesting matters to communicate to you. Montaigne once said that infants having become rugged and strong from the good milk they have sucked, often strike their nurse. Let us always be grateful for the good we get, the improvement in our knowledge, whether at home or abroad, and refrain from all injury to one who has helped us.

While in Bordeaux I first learned certainly of the death of that noble man and illustrious member of the profession, Thomas Addis Emmet. A rumor of this event reached me in Holland, but it was not until I met Dr. Jacobs, of Brussels, that the rumor was verified. Emmet occupies a unique place in American medicine. He was one of the few men who did original work; he was a voice, not an echo, and his real greatness will grow upon men. His artistic power was small, so his illustrations often failed of producing clear effects, and his style may not have been sufficiently condensed and plain, but still he has been a great teacher, and such a title justly belongs to few men in a generation.

Personally too, Emmet was an admirable man. He was kind and generous, and thoroughly honest; there was not the least appearance of sham and pretence, not the slightest trickery or treachery; he had nothing of what another dear friend in the New York profession, also, alas, gone, Fordyce Barker, characterised as fascinating insincerity. I wish there were more men among doctors like Emmet morally. Peace to his ashes, and greater, growing glory to his memory,

Sincerely,

THEOPHILUS PARVIN.

VERATRUM VIRIDE IN PUERPERAL CONVULSIONS.

EDITOR MEDICAL AND SURGICAL REPORTER:—I see reports of many different writers recommending as many methods of treating puerperal convulsions. I have felt it a duty I owe to the profession to give the benefit of my experience in this trouble.

In July, 1880, I attended in confinement Mrs. M., a primipara. She was delivered in reasonable time, of a healthy, well-developed, male child. About twelve hours after confinement she was taken with violent convulsions. I plied her with chloral, chloroform, tr. veratrum by the mouth, and other things which I do not now remember. But to no purpose. The convulsions recurred with increasing violence and frequency for twenty-four hours, by which time the patient, a beautiful woman, looked like a bloated sot. She had sunk so low that she was unable to swallow. I concluded to try veratrum by hypodermic injection. I gave her four drops of Norwood's tincture. In twenty minutes she had another convulsion. I gave her four drops more of the veratrum. In twenty minutes more every vestige of the besotted appearance had left her face. All of the attendants remarked it as wonderful. They, with myself, felt that she was relieved. She had not another convulsion, and made an uninterrupted recovery.

The next case was a negress, a primipara, who had been in convulsions for twelve hours. I gave like doses, at like intervals, and with like results, the bloated appearance subsiding at once. She had no convulsions after the second dose.

The difference between these cases—the first had post-partem, and the second ante-partem convulsions. The latter went on two weeks to term, and was delivered of a healthy child.

All authorities advise immediate delivery, but with veratrum controlling the spasms, the necessity for immediate delivery is relieved.

I will not detail any more cases, but will make this statement: That Norwood's tincture of veratrum viride by hypodermic injection is a specific for puerperal convulsions, regardless of the stage of pregnancy, or whether occurring before, during, or after labor. My experience extends over twenty cases in my own practice, and in the practices of colleagues to whom I had given the information.

I have tried other preparations of veratrum and when they have failed, I would procure Norwood's tincture. In every instance it has succeeded. I make this statement because, if an ordinary tincture should be used and fail, the physician would be disappointed, and, possibly, his patient might die. The reason for the different result is probably the difference in the care of manufacture.

The dose for a medium-sized woman should be seven or eight drops, repeated every twenty or thirty minutes. I generally have given four-drop doses, repeated at short intervals. But I think a larger dose would be safe and, perhaps would be sooner efficient.

I have seen many publications on the hypodermic use of veratrum in these cases. I do not know whether the writers got their information from parties to whom I had imparted it, or whether they learned as I did, by experimentation in a desperate case, nor does it make any difference. The profession now has the power to control what, to anyone who has witnessed or had charge of such a case, is one of the most horrible as well as fatal of diseases that are peculiar to the parturient state. I have tried it in all stages and I know that it will control the convulsions as certainly as an acid will neutralize an alkali. As to how and why, "this deponent sayeth not," but it does.

Respectfully,

F. B. HAMILTON, M.D.

Jackson, Tenn.

A Correction.

EDITOR MEDICAL AND SURGICAL REPORTER:—Looking over my article of a few months since, entitled *Diphtheria*, I was mortified to see that, on the second page, I have written, "that in all these years, from 1829 to this day, not one of the many hundreds of cases of measles, etc., treated by the cooling system, proved fatal."

The "etc." should not have been there. The success spoken of applied only to measles, of which I never lost a case. Of scarlet fever and diphtheria, I have lost a good many—some more than would have been lost had the nurses followed directions properly.

In all that I have written I know of no other error.

HIRAM CORSON, M. D.

Plymouth Meeting, Pa.

An Invitation

EDITOR MEDICAL AND SURGICAL REPORTER:—From the present outlook the "Cotton States and International Exposition" will be one of the "events" in the history of our country, and especially of the South. Realizing the immense number of physicians who will be present from all parts of the United States and other countries, I have decided to offer my mite of Southern hospitality to my visiting brethren. Therefore, I extend a cordial invitation to any physician who may visit our city, to make my office his headquarters. Send mail, telegrams, etc., in my care, and I will cheerfully engage rooms, etc., in advance for anyone if advised to do so. The only request I make is to enclose postage for letters of inquiry, which will be cheerfully answered. For any services I may render no fee, commission, or any perquisites whatever, will be received or expected.

Fraternally yours,

GEORGE BROWN, M. D.

23½ Whitehall St., Atlanta, Ga.

Russia's Abolition of Private Saloons.

By far the most important evidence of this trend of European public opinion is to be found in the action that Russia has now taken. In all the history of the modern temperance movement, no public law or decree has ever attempted any task so gigantic or of such far-reaching importance as that which Russia's new law has undertaken. For Russia has determined upon nothing less than a complete government monopoly of the manufacture and sale of the liquor supply of the entire empire. Somewhat more than two years are to be allowed for the system to attain completeness. It is to be put in force in eight provinces on the first day of July, 1896, in seven other provinces on the first day of July, 1897, and throughout all the rest of the empire on the first day of January, 1898. Saloon keeping as a private business will be altogether abolished. The French attempt at a monopoly of wholesale supply has been based very largely upon considerations of public revenue. It does not appear that the new Russian policy rests so much upon financial motives as upon a desire to rid the Russian people once and for all of the demoralizing influences of the liquor traffic as privately conducted.—*From "The Progress of the World," in the September Review of Reviews.*

Suggested Improvements in Weather Forecasting.

Now, in meteorology the weather map has played, and is still playing, an important part, but as a means of adding to our knowledge and forming a true studo of atmospheric changes its usefulness is almost exhausted. Further advance is necessary if we are to successfully forecast local storms, fogs, rain, snow, hail, moderate temperature changes and the like, but this advance is probable only by the efforts of competent scientific students, chiefly physicists and mathematicians. There must be the opportunity for some Galileo, Kepler, Copernicus and Newton if we are to lift the art of weather forecasting from its present ptolemaic stage into the stage of true theory as they lifted astronomy. The opportunities needed can probably be furnished only by government, because the present establishment is a governmental one and its services will be needed in the work, and also because meteorology is a general terrestrial science, and like geology, is too great for private resources. The time involved in such investigations as are needed is entirely uncertain. Some of the improvements, the forecast of fog, for instance, would come very easily. A single year of systematic investigation by a competent person with proper assistance and an expenditure of perhaps $5,000 would probably accomplish it.—*From "The Value of Weather Forecasts to Agriculture and Inland Commerce," by Professor Mark W. Harrington, in the Review of Reviews.*

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PHILADELPHIA, SATURDAY, SEPTEMBER 14, 1895.

EDITORIAL.

DEGENERATE LITERATURE AND ART.

As a writer, Dr. Max Nordau is generally imaginative, occasionally instructive, always interesting. He is known in this country as the author of "Degeneration," an entertaining book which sometimes puzzles one as to whether it should be taken in earnest or regarded as a joke, although the intentions of the author are obviously serious. "Degeneration" aroused such popular interest as to amount to a literary fad, and, it is altogether probable, will follow like fashionable sensations into the oblivion of innocuous desuetude. Dr. Nordau did not discover degeneration; neither was he the first to call attention to it; nor is the subject exhausted with his disquisition thereon.

Fortunately Dr. Nordau does not rest with calling the world's attention to the alarming condition of its inhabitants, and in a recent number of the *Forum* he presents "Society's Protection Against the Degenerates." This article is fully as interesting as his more elaborate work, and, in addition, contains some suggestions which have the merit of good common sense.

He assumes that, "the fact that literature and art have become more pathological of late years, is conceded to-day by every earnest observer," and that, whatever may be the differences in judgment concerning individual poets or artists, "every healthy mind must find Nietzsche's ideal of the bloodthirsty 'superhuman being' criminal, the lisping and stammering of Macterlinck's dramatic forms idiotic, the culture of the *Ego* in a Barrès anti-social, and that the teaching of Tolstoï touching the perniciousness of knowledge is inimical to progress."

His theme is the fatuous proposition of an immature Italian student, Ferrero, who advances an opinion that, "the mystical and morbid in art and literature protect society against many abnor-

mal tendencies which otherwise would have developed into action."

Ferrero says: "These tendencies usually remaining latent are no interruption to a position in social life; under the influences of excitement or suggestion, however, a development into positive wickedness might readily occur. Happily these books in creating a literary satisfaction prevent such individuals from seeking a further fruition in real life."

"With the immense, ever-increasing number of neurotic, hysterical, half-crazy and singular beings with whom our contemporary society swarms, great psychical epidemics would, I believe, break out to disturb social life seriously were there not happily always books which divert their abnormal inclinations into literary tendencies."

Nordau questions the accuracy of this specious presentment. He admits that there are degenerates who, "exhaust their obsessions and impulses in literary and artistic activity," but, says he, "the truth is, one seldom hears of gross crimes in the degenerates of art and literature, not indeed because their activity protects them from the commitment, but because the mental disturbance is not of the sort which leads one to criminal deeds. It is not to be thought that every criminal conception or desire arising in the like abnormal brain can transform itself into action.

"The artistic and literary activity is, even for the productive degenerates, only conditionally an outlet for worse manifestations of their mental state. Of the deducible effect of morbid productions on the recipient masses, on the reading and observing public, there can be no question.

"To recommend degenerate books to neurotic or hysterical readers is not only to vaccinate but to inocculate them. There is here certainly a communication of the disease, whereas, according to Ferrero, the method should prove the preservative. An unhealthy imagination finds in the wild lucubrations of the degenerates welcome nourishment and a pattern zealously to be imitated. Every dormant inclination is awakened and monstrously developed by this sort of reading. Far from causing a satisfaction of these morbid tendencies that shall no longer seek perpetuation in deeds, such reading only strengthens what becomes an imperative necessity to commit crime and immorality. Every educator, criminologist, and neuropathic physician, everyone who has carefully followed the etiology of aberration will agree with me.

"It should be remembered that every human mind contains every species of aberration and delirium in the germ. In frenzy, even when most violently developed, nothing new is present to the accustomed domain of thought. Only a change of proportion and relation occur. The normal equilibrium between the various nerve-centres is suspended. One faculty, for instance motor-impulse, is strengthened; the other, such as memory or inhibition, becomes weakened. According to this, then, insanity is an augmentation of one cerebral function, or the diminution of another. It contains, however, no element that could not be demonstrated as present in the most normal brain. How, then, in spite of this, do we retain a healthy mental state? For two reasons only. We do not cultivate the germs of aberration and delirium contained in our brains, and should they develop without our attention, we retain the will as well as the power to suppress them. Fail to regard these two reasons, cultivate the germs of insanity and perversion in the human mind, weaken the will and the power to suppress them, with the result that a race of madmen will speed-

ily develop, who would perhaps have remained quite healthy had their morbid tendencies not been encouraged. The immense influence of the literature of fiction on the masses is not, perhaps, given its due weight. Fiction exercises a powerful and an unremitting, suggestive influence, which subjugates the whole mental personality, manner of thought and action of the reader.

"It is plain that the average person is greatly attracted to morbid literature and art by the evil suggestions and abnormal condition it increases, for it weakens inhibition, teaching lack of justification and non-resistance. Degenerate poets and artists have thrown a light upon certain evil instincts which heretofore have been only confusedly felt and indistinctly understood, but which now assume determined outlines. They even exercise a baneful influence on those who, having nothing more to learn from these masters and leaders, are perfectly aware of their own degradation; the injury lies in the encouragement to throw off the mask of respectability, to make open confession of the aberration which finds expression in morbid productions. The significance of such influence should not be undervalued.

"Degenerative art and literature are from beginning to end but the rehabilitation of all that civilization up to this time has stamped as injurious and vicious. It is the glorification of what heretofore has been considered only shameful. Brutal egotism was formerly a vice whose dominating influence was carefully concealed. Now, however, it is known as Nietzscheism, and is regarded as a boastful mental distinction. Formerly a woman who maintained some irregular relationship shunned the light of day, assuming at least the pretension of honesty; now, however, she is proud of the distinction, is called an Ibsenite, while her unscrupulousness places her among the *elite*. The result is doubly injurious. It liberates the vicious from the necessity of assuming a virtue and deprives them of the slight benefit of this mental gymnastic, while the slaves of fashion are taught to imitate the attitude of the depraved, which, in its reflex action on the mind, helps to inculcate a vice that originally they may not have possessed.

"He who surveys the harm accomplished by morbid art and literature,—its evil suggestion to harmless readers; the germ of aberration cultivated in abnormal readers; the cognizance of undefined instincts generating madness and wickedness; the power and desire for self-control weakened; cynicism assuming the place of hardly-won reserve; the attitude of viciousness or madness become the fashion for stupid and hitherto harmless snobs,—will surely encourage any counteracting influence on these productions. The question is only this: How shall it be accomplished?"

A Case of Primary Rheumatic Inflammation of the Serous Membranes.

Thiele (Charité-Annalen, 1894, bd. 19) has noted, with Fiedler, polyarthritis rheumatica occasionally occurs without swelling or reddening of the joints; in other words, that the virus expends its force on other serous membranes, especially the peritoneum and pericardium. He describes a case of a 19-year old girl, of previous good health, who was taken with chills, fever, and severe general symptoms. There was found an inflammatory exudate in the pericardium, both pleuræ, and the peritoneum. The exudate accumulated very rapidly, and quite as rapidly disappeared. As pyæmia, tuberculosis and pneumonia could be excluded, no other diagnosis than rheumatic inflammation was possible.

ABSTRACTS.

GONORRHEA IN MAN.*

RAMON GUITERAS, M.D.,† NEW YORK.

Gonorrhea, derived from gonos, semen, and rheo, to flow, meaning flow of semen, was so called because it was supposed for a long time to be a disease of the secretory apparatus, resulting in a more or less constant flow of semen from the urethra. As time advances, however, the name gonorrhea seems to be going out of use, while the more proper term, urethritis, signifying an inflammation of the mucous membrane of the urethra, is justly gaining ground.

This disease seems to have been known since the earliest days of medicine, as both Hippocrates and Celsus referred to it in their ancient writings, and considered it contageous. About the time of the discovery of this country syphilis became prevalent in Europe, and was a long time considered as related to gonorrhea, and due to the same virus. This mistake was founded on the ground that both were due to sexual intercourse. From this time up to that of our revolution this view held sway, when John Hunter claimed that they were two distinct diseases, and to prove it inoculated himself with the pus from a case of urethritis. Unfortunately, however, the patient was suffering from an unrecognized syphilis at the time. Hunter contracted the disease, and thus became firmly convinced that he had been mistaken, and that the two affections were different forms of the same disease. This delayed the true recognition of urethritis for many years longer, and it was not until Ricord's investigations in the time of our fathers that the difference between the two was clearly shown.

Urethritis is usually due to direct contact with the genitals of a female suffering from the disease, from which there is some discharge containing the infection. Rarely it may be due to indirect causes, as by the use of infected towels, etc. Two varieties are spoken of, which I will term urethritis and pseudo-urethritis. The former constitutes nearly every case of acute running clap, and is due to the gonococcus of Neisser. The latter embraces the so-called "strains" and slight ephemeral discharges. Others of the so-called strains occur in men who are suffering from such a mild form of chronic urethritis that no discharge has appeared at the meatus for some time. They imagine themselves well, but a careful examination would reveal foci of the disease.

The infection, consisting of matter containing the microbe, gonococcus, finds its way to the mucous membrane of the urethra. The germs make their way through the epithelial layer to the subepithelial tissue, where they excite an inflammation, evidencing itself in a hyperemia and serous exudation. There is an exfoliation of urethral epithelium and an increased secretion from the glands of the urethra. Leucocytes next make their way through the dilated capillaries, absorbing and carrying with them large quantities of gonococci. The mucous membrane now appears thickened, of a deeper red, and is bathed in a mucopurulent secretion. Erosions and small ulcerative patches are sometimes present. The mucous follicles appear congested and elevated.

The leucocytes having borne the micro-organisms to the surface, where they are discharged, the process of repair begins and the symptoms subside. Resolution takes place most slowly in the urethral glands. These continue to discharge pus for some time after the inflammation in the remainder of the ure-

* Read before the New York County Medical Society, May 27, 1895.

† Prof. of Anatomy and Operative Surgery in the New York Post-Graduate Medical School and Hospital; Consulting Surgeon to the French Hospital; Attending Surgeon to the Columbus Hospital and to the City Hospital (Genito-Urinary Department).

thra has disappeared. If the erosions and ulcerative patches do not heal, the inflammation becomes localized and chronic. Sometimes on these denuded or ulcerative areas, small granulations develop, forming the granular patches so often seen in endoscopic examinations. At other times the general hyperemia may become localized at one or more points, causing a chronic urethral irritation and discharge.

The other most frequent cause of chronicity is the persistence of the inflammation in the urethral glands and the formation of strictures. Strictures are due to a localized chronic inflammation occurring beneath the granular patches or around the urethral glands with the consequent interstitial changes, the pathology of which I will not go into. These I will consider as of three varieties: the soft, the resilient, and the hard. The first variety is usually recent, the second of variable duration, and the third an old process. Another variety, the congenital form, is located near the meatus, and is remarkably unyielding.

In these conditions of chronic urethritis the discharge from the lesions just mentioned may be sufficient to reach the meatus and manifest itself as a drop or slight moisture. Often, however, it is not sufficient, and becomes deposited along the walls of the urethra. These deposits are rolled up by the urine passing over them, and washed out. They show themselves in the urine as shreds or flakes, called by the Germans "Tripperfaeden," and consist of mucus, pus, epithelium, and some gonococci.

The period of incubation in cases of urethritis is from 1 to 14 days, although the discharge is generally first noticed about the third day.

Shortly after a suspicious coitus the patient experiences an uncomfortable itching sensation about the meatus, followed by a slight burning during micturition. Inspection now reveals a slight moisture, or a drop of muco-pus, at the meatus, which is somewhat congested. These symptoms increase rapidly in severity, the congestion of the meatus and glands becomes more marked, and the prepuce is often edematous. The discharge becomes thicker and more yellowish or greenish in color, and the micturition more painful. The symptoms continue to increase steadily for 1 to 2 weeks, when they turn and subside slowly. When the disease reaches the posterior urethra the symptoms are generally modified.

Posterior Urethritis is considered by some as a complication of an anterior urethritis. Personally, I regard it as an extension of the disease to the deep urethra, membranous and prostatic. Authorities differ in regard to its frequency, some placing it as high as 80 per cent. It is my opinion that it occurs in fully that proportion, if not oftener, and that the reason why it is often overlooked is because its occurrence is not marked by symptoms sufficiently severe to cause much complaint. Finger, in 1883, seemed to be of the opinion that in all cases the inflammation extended to the posterior urethra, and stated that the disease traveled slowly down the urethra, and reached the vesical neck on about the tenth day. The reason why this inflammation is supposed not to extend more frequently to this part of the canal, and, at times, not to cause severe symptoms, is because the membranous urethra is much less vascular and almost devoid of glands and follicles, and consequently not so well adapted to assist in its march. The patients in whom marked symptons of this condition occur are those who are "below par," of a nervous temperament, or who have indulged too freely in alcoholics and venery. It may occur at any period during the attack, but usually not before the tenth day, and most frequently in the third or fourth week.

When this extension takes place the patient notices a feeling of discomfort, heat, and heaviness in the perineum, with increased frequency of urination. The desire to urinate is sudden and at times uncontrollable, and on finishing there is a tenesmus, a straining to squeeze out a few more drops. In severe cases the patient passes his urine every few minutes during the day and many times during the night, each urination being accompanied by pain and occasionally blood. Frequent erections and emissions during the night also occur.

When this condition is subacute and

the symptoms not marked, the "two-glass test" is used for determining its presence or absence. The urine in these cases is thick and cloudy, and in the morning, especially after a long sleep, considerable pus is found in it.

Chronic Urethritis is said to exist when, after a duration of six weeks, some discharge is still present. This usually manifests itself as a slight moisture during the day, with a drop at the meatus in the morning, known by the French as the goutte militaire, on account of its frequency among soldiers. This is sometimes called gleet, and the discharge is spoken of as gleety. In cases where the discharge is so slight that nothing is apparent at the meatus during the day, and there is only a slight moisture in the morning, Tripperfaeden are usually found pointing to some localized inflammation. This is generally due to the presence of granular patches, ulcerations, denudations, localized hyperemias, or strictures along the canal.

Experience has taught me that the majority of cases of chronic urethritis, especially if they have had previous attacks of urethral trouble, are due to strictures, with localized congestions posterior to them. In case that a patient presents himself with symptoms of chronic urethritis, my method of examining him is briefly as follows:

I examine his meatus for a discharge, which, if present, points to the existence of an anterior inflammation. I then wash out his anterior urethra with a soft rubber or glass tube passed down to the bulb. The patient then passes his urine in two glasses. If the contents of the first glass show more flakes than the second, I conclude that a posterior urethritis is also present. If there are no flakes in either glass and the urine is clear, it is an evidence that there is no posterior trouble. My next step is to examine the urethra, with the acorn-bulb bougies, to ascertain the presence or absence of strictures. After this I endoscope the urethra to discover if any granular patches, localized congestions, denudations, or ulcerations are present. The washings of the anterior urethra may also be examined.

The difference between urethritis and pseudo-urethritis is not marked on first appearance. The microscope will usually determine it; and a few days will generally clear it up clinically, as the former becomes rapidly worse, whereas the latter becomes rapidly better. Much more frequently, however, it is confused with an exacerbation of a latent attack, which has existed for months, and where gonococci have always been present. The history of the case will usually make this clear, as such a condition is generally found in men who, during their attacks, have become tired of treatment and allowed it to "wear off."

Chancroidal ulcers and chancres in the urethra are often confused with urethritis, as they cause considerable urethral discharge. In the former the condition is easily recognized from the loss of tissue and active ulceration about the meatus In the latter the diagnosis is often difficult, as the induration is such that we cannot open the meatus widely enough for a thorough examination, and because the glans is usually much congested. I can recommend, in examining these cases, a wire nasal speculum, which exposes them better than any other instrument.

There is sometimes a slight muco-purulent discharge during the active second stage of syphilis, which is supposed to be due to mucous patches in the urethra.

Uncomplicated, the disease usually lasts from four to six weeks. If it lasts over six weeks, it may be considered chronic.

A case is considered cured when the discharge has ceased—that is, does not appear at the meatus or stain the patient's linen. The disease may, however, remain in a localized, or very subacute, state for some time after this, as is evidenced by flakes or shreds in the urine. Some authorities hold that as long as these shreds can be found the patient has not recovered. I presume that they are right, but think, in the vast majority of cases, where they are still noticed after the dischagre from the meatus has ceased, that they will disappear if the patient abstains from alcoholics and venery for a few weeks. The tendency for a man who has just recovered from a urethritis is, however, to indulge in both of these as soon and as often as possible.

The occurrence of posterior urethritis,

complications, or the presence of strictures makes it extremely difficult to form a correct prognosis.

In my own practice this depends on certain conditions:

1. The stage of inflammation in which the patient presents himself.
2. The presence or absence of posterior urethritis.
3. The presence or absence of strictures.

If the patient presents himself in the first stage of a very acute attack, evidencing itself in an abundant discharge and great congestion about the meatus, glans, and prepuce, accompanied by painful micturition, I usually delay active treatment for a while and try to make him comfortable.

I gave him a diluent, usually the A. B. C. effervescing diluent tablet made by Fraser & Co., which contains 5 grains each of the citrate and the bicarbonate of potassium and dissolves with effervescence, in a glass of water. I direct him to take as many as he likes during the twenty-four hours, and at least six. I also put him on either cubebs in teaspoonful doses, every three hours, or santal-midi capsules, beginning with one and running up to four three times a day. His bowels are kept open with rochelle salts, and two hot sitz-baths a day are taken. In addition to this, I regulate the diet, cutting off all stimulants, tobacco, pepper, and asparagus, and order a suspensory bandage to be worn.

This will usually take down the congestion sufficiently in less than three days to allow him to commence astringent injections or hot irrigations. These do not conflict with each other, and may be used together, if one chooses.

As, however, by far the majority of cases coming to me do not have the very acute symptoms mentioned above, and are suffering from a second or third infection, I am not obliged to resort to the palliative measures just referred to, but put them on injections or irrigations, accompanied by the diluents already spoken of. Formerly, I began always with hand injections, and did not resort to irrigations until it seemed that the former were not acting efficaciously. At present, if the patient can come often, I start in with mild irrigations, given once a day, and accompanying them by a bland and slightly astringent hand injection. If the patient is in a hospital ward, I give two irrigations a day, and in that case do not think it advisable to use the hand injections in connection with them; but when the irrigations are from twenty-four to seventy-two hours apart, it appears to me that the hand injections materially assist by holding the ground gained through the irrigations.

The hand injection should be of the blandest type, as one made from zinc, alum, or lead, dissolved is rosewater. The irrigations should be of solutions of potassium permanganate or silver nitrate. Bichloride of mercury solution is sometimes used, but seems to be more irritating than the first two mentioned. If permanganate is used, I start in with a 1 in 5,000 solution and increase it to a 1 in 2,000; if silver nitrate, I commence with 1 in 8,000 and run it up as high as 1 in 2,000. When I first began to irrigate, I was in the habit of starting with permanganate and not using the nitrate of silver unless the former failed to prove efficacious or did not agree with the patient. Later on, having observed that patients improved more rapidly under the silver irrigations than under permanganate, I began to reverse my order and use silver first, and permanganate only in those cases which did not improve under silver.

My method of irrigating is as follows: The patient, having passed his water, lies on his back with the shoulders elevated. The douche-jar is raised to a height of two feet, and a tube, made of glass or soft rubber, is introduced into the urethra as far as the bulb. The fluid is then allowed to escape into the urethra, which it irrigates thoroughly, escaping by the side of the tube. Of the two tubes, the glass is preferable, as it is more easily kept clean. In sensitive urethras, however, the soft rubber retrojecting tube is much preferred by the patient. The irrigating fluids should be used as hot as they can be borne.

Up to this point I have been speaking simply of the treatment of anterior urethritis. If posterior urethritis develops during treatment, or the patient first appears suffering from an antero-posterior inflammation, I do not give any

hand injections, but modify my method of irrigating and add to my internal treatment. My method of modifying the irrigation is by increasing the height of the douche-jar from two to five feet. Then when the fluid is running freely through the urethra and escaping along the sides of the catheter, I simply grasp the organ between my thumb and forefinger and compress the urethra against the tube. If the solution now runs into the bladder, it is only necessary to allow it to do so until that viscus is full; but if it does not overcome the "cut-off" muscle, I direct the patient to strain, as if about to urinate, and then to take a few deep breaths. This is usually sufficient to allow the fluid to overcome the muscle and flow into the bladder. They then urinate it out, thus allowing it to again come in contact with the entire urethra. In adding to my internal treatment, I give ten drops of belladonna three times a day to overcome the tenesmus, and sandalwood oil or santal-midi to modify the urine passing through the canal; if the sandalwood oil, I begin with 15 drops three times a day, and increase 5 drops a day as long as it is well borne; if the santal-midi, I start with one capsule and increase to four three times a day.

In case the preparations of sandalwood oil do not agree with the patient, I often give other antiblennorrhagics, as cubebs or copaiba. I think that the sandalwood preparations should receive the first consideration, as they do not irritate the digestive and genito-urinary tracts as much as the others.

If irrigations do not seem to benefit the posterior urethritis, I leave off the general treatment of the urethra and give, locally, posterior instillation of nitrate of silver every other day, by means of the Ultzman syringe, beginning with a one-grain-to-the-ounce solution, and increasing it gradually in strength.

In certain very acute cases of posterior urethritis, especially in individuals who are nervous or "below par," a great deal of inconvenience and suffering is experienced, as the calls to urinate are frequent and imperative, and are accompanied by much tenesmus. For these cases I prescribe complete rest, accompanied by hot sitz-baths, rectal enemata of hot water, suppositories of belladonna extract and morphine (one-fourth grain each), rochelle salts mornings, and a milk and vichy diet for a few days, until the symptoms have subsided sufficiently to begin deep irrigations or installations. In regard to the treatment of chronic urethritis, or gleet—that is, when the patient has a slight moisture during the day and a drop at the meatus in the morning, and where any indulgence in alcoholics causes an exacerbation of the trouble—I examine for strictures with a bulbous sound and endoscope the canal. If strictures exist which are new or yielding, I dilate them by means of the Oberlaender dilator by easy stages, generally increasing the lumen of the strictured portion of the urethra two millimeters at each treatment, afterward passing sounds of the Otis curve, anointed with equal parts of an ointment of red oxide of mercury and vaselin. If the strictures are hard and tough, or if we have a resilient one, which does not seem to be benefited much by dilatation, I advise an internal urethrotomy by the Otis method. After the urethra has a smooth bore, if the gleety discharges continue, the endoscope will usually reveal some localized areas of congestion or inflammation, which are best treated by applications of silver nitrate, from one to twenty grains to the ounce, through this instrument.

In this way the most rebellious cases of chronic urethritis or gleet are cured. Patients must not be discouraged if several months pass by before this is accomplished, for, if the patient should become tired of treatment and allow it to "wear off," some foci of the disease may remain, which might be sufficient to infect any female with whom he may cohabit.

In closing I should like to call attention to one point in the treatment, and that is the difference in the ability of the patient to tolerate solutions of the same strength by different methods. For instance, a patient will complain as much of a 1 : 1,000 solution of nitrate of silver by irrigation as of a 1 : 50 solution by hand injection, although one is twenty times as strong as the other.—*Amer. Med. Surg. Bul.*

ACETANILID AS AN ANTISEPTIC SURGICAL DRESSING.

Wm. A. Edwards, *Southern California Practitioner* for August, writes:—For the past five months, since the appearance of Morton's paper, I have been employing acetanilid in surgery as a substitute for iodoform and its various combinations. Its use has been so satisfactory that it is with pleasure this little clinical note is written and my testimony is added to that of others who have written in laudatory terms of the drug.

When applied to a wound it produces intense dryness, but no complaints have been made of a burning sensation when the drug has been applied alone; but when boracic acid is added this sensation is often complained of to a marked degree.

We have used the drug in the following combinations: various percentages of acetanilid with boracic acid, from 25 per cent. to 80 per cent. of the former; the pure powdered acetanilid; five and ten per cent. gauze; alcoholic solution and the drug suspended in normal salt solution.

I have not used it with liquid petroleum, 40 grains to the ounce, or with ether or chloroform. Suspended in water it serves well for injection into abscesses or sinuses. In ordinary cocoa-butter suppositories it is very efficacious in rectal affections, ulcers, or inflamed hemorrhoids.

In the following cases we have observed most gratifying results: A tuberculous abscess in Scarpa's triangle in a boy; tuberculous abscess of cervical glands; an extensive breast amputation for carcinoma in which it was necessary to sacrifice a great deal of tissue; gunshot wound of the gastrocnemius; subrapubic lithotomoy in which a necrotic fat abscess formed on the thirteenth day; hemorrhoids, rectal ulcerations and fissures. It will be seen by this list that the drug has been freely tried under many different conditions with success. There are, however, a small minority of cases in which acetanilid cannot be used just as some persons will not tolerate iodoform or any of the iodine compounds. In my experience I have met with two such cases. One was an amputation of the ear from epithelioma of the helix and the other was an abscess of the maxillary sinus (empyema of the antrum of Highmore). These were both elderly men, the former was aged seventy-three and the latter eighty-four. In these men acetanilid seemed to produce a deal of irritation and to delay granulation. I have had a similar experience several times with iodoform.

We use the powder very freely and in a large number of cases have not observed any toxic effects; Morton in a much larger series has noted toxic effects but twice. One case in an infant aged fourteen months, in whom excision of hip had been performed for tuberculosis and the wound packed with acetanilid; in four hours the temperature dropped five degrees; great pallor and feeble pulse. The temperature rose and symptoms disappeared upon withdrawal of the drug. The second case was one of extensive suppurative superficial scald. At twelve o'clock eight grammes of finely powdered acetanilid was dusted over the surface; at five P. M. the patient presented grave toxic symptoms; all acetanilid was at once removed, digitalis and whiskey were exhibited and by midnight he was in a normal condition.

Soper (*Medical World*, Vol. XIII, No. VI, 1895, p. 216), of the Sydenham Dispensary, New York, has used it with a very free hand and has observed no effect upon the temperature. He calls attention to the fact that it appears to do well up to a certain point, and then, as it were, to lose its grip, as he expressed it; he also states that the necessity of forcibly removing the crust and finding a collection of pus under it is unfavorable.

I have as already stated, observed the first condition as stated by Soper, but considered it due more to the advanced age of the subjects than to any want of response on the part of the drug. The latter condition I have never met with; when the crust was removed the granulating surface was always intensely dry as stated by Morton. In the cases in which the drug seemed to lose its grip this dryness persisted but the wound area did not decrease.

Harrell (*Medical News*, Oct., 1893); Hand (*Ibid*, Vol. LXIV, p. 269) and Knowles (*Ibid*, Vol. LXIV, p. 419), all speak in the strongest terms of the efficacy of the drug, the former states that the wounds heal quickly even after coal dust and other foreign matter had gained entrance.

It will be seen that the drug has a very wide application, and in most cases it will prove so satisfactory that it is difficult to restrain one's self from speaking too enthusiastically. It is, however, entirely safe to say that in acetanilid we have an addition to our surgical armamentarium which is quiet equal to and indeed superior to iodoform without its objectionable odor; that is no more dangerous than iodoform and that it may possess the ability to render the skin sterile preparatory to operative procedures. This, however, will require further study and microscopic investigation into the ability of acetanilid to destroy the staphylococcus epidermitis albus.

Since writing the above the recent laboratory work of Frothingham and Pratt (*Amer. Jour. Med. Sci.*, August, 1895,) upon the anti-bacterial action of acetanilid has come to my notice. These experiments show that the inhibitory action of acetanilid is much more marked in the one per cent. than in the five per cent. tubes. The growth of the bacillus pyocyaneus is much more affected by the presence of acetanilid than the other organisms.

The experimenters conclude as follows: Although acetanilid has not been very widely employed as a surgical dressing, in the cases where it has been used the results heve been so successful that its superiority over iodoform seems very probable, and its use instead of the latter indicated.

Laboratory experiments uphold the clinical proof of its value as a surgical dressing, aud the conclusions which the experiments teach are:

1. That acetanilid is probably to a very slight extent a germicide.

2. That acetanilid is decidedly an antiseptic.

[In this connection it is perhaps well to remember Sternberg's definition. "Antiseptics restrain the growth of micro-organisms which produce septic decomposition without destroying their vitality. Disinfectants destroy the germs of infectious diseases. Germicides are an extended term of the latter, agents that kill non-pathogenic bacteria as well as disease germs.]

3. That, as an antiseptic, acetanilid is far superior to iodoform, and that certainly from a laboratory, and probably also from a clinical, standpoint its substitution for the latter seems warranted.

Their experience is contrary to that of some other observers, in that they state that there is no danger of poisoning from the absorption of acetanilid.

Antipyrin in Diseases of Children.

At the French Congress of Internal Medicine recently held at Bordeaux, (*Sem. Med.*, August 17), Comby stated that antipyrin can be given to children as an antipyretic, an antispasmodic, an analgesic, and to check diarrhœa. The drug is well borne by children of all ages, and it can be given in large doses. Only once in hundreds of cases has Comby seen a slight fugitive erythema caused by the administration of antipyrin. It has never in his experience caused disorder of the stomach or intestine, vomiting or any ill effect on the kidney. In children suffering from febrile or spasmodic (chorea) diseases, antipyrin should not be given in fractional but in large doses to produce its full effect. According to the age af the patient 25 or 50 centigrammes, or 1 g., should be given at a time; this dose may be repeated two, three, five, and even six times a day. The same doses may be continued for weeks without ill effect. In chorea antipyrin as a rule diminishes the violence and disorderliness of the movements and shortens the duration of the disease. In whooping cough antipyrin has failed in the author's hands. In painful affections and in infantile hyperasthesia it is unreliable, but Comby admits that his experience on this point is not sufficient to base a final conclusion upon. In fevers antipyrin causes a notable reduction of temperature; it is one of the surest of antipyretics, and may be used without fear. When antipyrin in a sufficient dose does not lower the temperature it is a prognostic sign of ill omen.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

The Operative Treatment of Buboes.

Laub (*Internat. Klin. Randschau*) recommends the method of Lang, which consists in opening the gland at the point where fluctuation is most apparent, by the smallest possible incision, pressing out the pus, and injecting the cavity with 2 per cent. solution of nitrate of silver. The wound is then dressed with iodoform gauze. The injections are repeated so long as pus is formed. Healing commonly takes from one to two weeks, and the advantage of the method is found in the fact that almost no appreciable scar is left.

In the discussion, Hebra and Lang recommended this method in cases where the pus is situated centrally in a single mass; cases of disseminated suppuration demand rather radical extirpation. The success of Lang's method depends upon the disinfecting power of the silver nitrate and the albuminate and chloride of silver formed in the tissues.

Atropine in the Treatment of Gastric Hypersecretion.

Dr. V. Pugliese, of Bologna (*Medical Week*), has had occasion, in the treatment of four patients, to satisfy himself that atropine is an excellent remedy for correction of the hypersecretion of gastric juice, as Dr. Voinovitch stated in 1892. In all the four patients under Dr. Pugliese's care, hypodermic injections of atropine were invariably followed by considerable decrease of the quantity of hydrochloric acid in the gastric juice, as ascertained by chemical analysis. Unfortunately, two of the patients suffered from organic lesions of the stomach (enormous gastrectesis and cicatricial stricture of the pylorus) of such extent that the medical treatment was powerless to cure them. In the two others, however, in whom the structure of the stomach was not yet changed, all the morbid phenomena subsided completely under the influence of daily subcutaneous injections of neutral sulphate of atropine, continued from one to two months, in doses of one-half to one milligramme, combined with irrigations of the stomach and suitable diet.

Sleep for Children.

A German specialist says: "Nature has recently pleaded for giving children more sleep." A healthy infant sleeps most of the time during the first few weeks, and in the early years people are disposed to let children sleep as much as they will. But from 6 or 7 years old, when school begins, this sensible policy comes to an end, and sleep is put off persistantly through all the years up to manhood and womanhood. At the age of 10 or 11 the child is allowed to sleep only eight or nine hours, when its parents should insist on its having what it absolutely needs, which is ten or eleven at least. Up to 20 a youth needs nine hours sleep, and an adult should have eight. Insufficient sleep is one of the crying evils of the day. The want of proper rest and normal conditions of the nervous system, and especially the brain, produces a lamentable condition, deterioration in both body and mind, and exhaustion, excitability and intellectual disorders are gradually taking the place of the love of work, general well-being, and the spirit of initiative.—*N. Y. State Medical Reporter.*

The Preparation of Aseptic Catgut by Means of Formalin.

Cunningham (*N. Y. Med. Journal*), in a paper read before the Section in General Surgery, of the New York Academy of Medicine, advises the following method of preparing aseptic catgut. The catgut is soaked for two days in a mixture of absolute alcohol and ether. It is then placed for several days in a mixture of equal parts of formalin, alcohol, and distilled water. After this treatment the formalin is removed from the gut by boiling it for half an hour in a normal saline solution. It is then preserved in alcohol and is ready for use. For this method the author claims the following advantages: The gut is absolutely sterile, as formalin is an active germicide; the sutures are less quickly absorbed, since formalin unites with albumens to form fairly insoluble compounds; the catgut is not brittle, and may be boiled in normal saline solution without losing its strength.—*University Med. Magazine.*

Pregnancy and Dental Caries.

Dental caries is a disease characterized by molecular disintegration of the normal constituents of the teeth, and is probably more liable to occur during pregnancy; it is caused by the same processes which produce lactic acid, which latter in turn decalcifies the enamel and exposes the dentine. There is evidence to prove also that the saliva is more acid during the period of gestation than at other times; which, if true, is probably due to changes in the blood whereby its alkalinity is diminished. The analogy between this and the litæmic condition is striking.

It is improbable that lime salts are abstracted from the teeth to supply the needs of the growing fœtus; more than enough phosphates are ingested to supply the needs of both mother and child, hence maternal teeth do not suffer from lack of nutrition; again, during gestation osteophytes are found, evidencing an excess of lime salts in the system.

Vomiting of pregnancy, while it may be to some extent aid, cannot be considered a potent factor in the production of dental caries; neither can neglect of the teeth during pregnancy be proved to be more prevalent than at other times.—*Doctor Peterson.*

Treatment of Pulmonary Phthisis by Injections of Guaiacol.

M. Le Tannuer has employed subcutaneous injections of guaiacol in sterilized oil for about three years. His method differs from that of Professor Burlereaux only therein that he employs guaiacol instead of creosote, the former being the really active principle of the latter. His formula has been 5 centigrams of guaiacol and 1 centigram of iodoform to 1 cubic centimetre of sterilized oil. He begins by injecting 1 c. c. m. every two days, gradually increasing up to three or more every two days, according to the sensibility of the patient. He reports excellent results, the incipient cases all being cured and the more advanced partly cured and partly very much benefited and relieved of the annoying symptoms, as expectoration, cough and night sweats.—*Journal de Medicine de Paris.*

The Employment of Bicarbonate of Sodium in the Treatment of Gastric Dyspepsia.

Mathieu, after reviewing the various opinions of physicians as to the value of bicarbonate of sodium in the treatment of dyspepsia, arrives at the conclusion that this alkaline salt is equally serviceable in hyperchloracid acidity as in hypochloracid acidity. Its value depends upon the method of its administration. In hypochloracid acidity, doses of from 7 to 30 grains in the morning before breakfast augment secretion and increase the motor activity of the stomach. It is, however, of little utility in cases of pronounced dilatation.

For hyperchloracid acidity full doses of bicarbonate of sodium during digestion are necessary. *Revue Internationale de Medecine et de Chirurgie Pratiques.*

First Aid to Persons Injured by Electric Currents.

Professor Gariel, of the Paris Academy of Medicine, presented a committee report at a recent meeting of that body upon the means to be taken in treatment of persons coming in contact with electric wires or apparatus. The following are the conclusions:

When a person meets with an accident due to contact with electric conductors or generators, the contact must first be broken, if it still exists, as otherwise, those who come to render assistance may also become victims of the same accident.

The victim is to be carried to a well ventilated room, from which all persons, except, at the most, three or four assistants, are excluded.

The clothing should be loosened at once, and efforts are to be made at the earliest possible moment to re-establish respiration and circulation.

To restore respiration, recourse should be had mainly to the following two procedures: rhythmical traction on the tongue and artificial respiration, both must be continued for a sufficiently long time.

Lastly, concurrently with these procedures, the circulation should be stimulated by rubbing of the skin, flagellation of the trunk with the hand or wet towel, and any other means usually resorted to in such cases.—*Medico-Surgical Bulletin.*

Green Hair.

Greenish hair in men occupied in copper works and in copper mines is not unknown, for as far back as 1654 Bartholin drew attention to its occurrence. Since then several other observers have recorded instances of the same (*Ex.*) The most recent case is that of Dr. Oppenheimer's, who, at at a meeting of the Johns-Hopkins Hospital Medical Society, showed a specimen of green hair obtained from a patient who had been under his treatment. The man, at 58, had been a workman in copper works for four years, exposed to very fine copper oxide dust. He was not very cleanly in his habits, and he was suffering at the time of his visit from vague gastric symptoms. No pulmonary signs were detected. The hair was a pale but distinct green, this color being more marked on the head and the moustache. But, curiously enough, in the hair all over the body the same coloration was displayed. Copper was easily demonstrated chemically. Microscopically the hair was uniformly colored, no crystals being seen anywhere. The patient did not return after his first visit, and it was ascertained that he died two years later with a severe cough. The fact, however, is certain, that workers in copper works need not necessarily become affected with the poisonous metal, provided that scrupulous cleanliness be observed. The hair must be washed daily in a solution of soda, ordinary water being useless for the purpose. Experience shows that the part first to become affected is the moustache, and next the head; but if the latter be protected by a thick cap no coloration is produced. Unless care be taken as indicated, three or four days after starting work will be sufficient to cause the coloration to appear, and in summer time it is especially prone to occur, when perspiration is free. It is of some interest to note also that the underwear has a greenish tinge wherever it has been thoroughly soaked with sweat.

Cystitis Caused by the Use of Large Doses of Alkalies.

Alkalies used in gastric affections may be the cause of cystitis, says M. Mathew. In one case he saw on the second day of treatment vesical hematuria produced, the first time from 12 grammes of bicarbonate soda and 3 grains of magnesia given in several doses; and the second time by 4 grains magnesia and 6 grains prepared chalk. He thinks, therefore, that alkalies should be given with great care to persons having any bladder weakness. In any case if unfavorable bladder symptoms are observed, alkalies should be suspended at once. The amount should be regulated by the acidity of the urine.—*Rev. Therap.*

Auto-Infection from the Intestine.

Posner and A. Lewin (*Deutche Med. Woch.*, 1895, No. 7, p. 28), publish investigations regarding escape from the intestine, through slight changes in its lining, of intestinal bacteria, and the demonstration that these only cause peritonitis when conditions are favorable for their growth (*e. g.*, extravasation of blood) and that usually they are rapidly taken up from the peritoneum and distributed throughout the body. It was also found that the bacteria in the intestine may

extend by continuity or continguity to other structures and cause disease processes, as in cholangioitis, purulent hepatitis, etc. They refer to the finding by Sittmann of the *Bacillus coli communis* in the living blood in cases of general infection from the intestine; and report some experiments which demonstrate that the uninary tract may become infected by intestinal bacteria through the circulation, contrary to the teaching of Guyon in 1892. In their experiments it was found that in from eighteen to twenty-four hours after ligating the rectum of rabits the *Bacillus coli communis* was present in the peritoneum, heart-blood, kidneys, urine, etc. That the bacilli do not reach the kidney by first penetrating from the peritoneum directly to the bladder and then traveling upward, was shown by ligating one ureter and then causing an obstruction of the rectum; the colon bacillus appeared promptly in the kidney whose ureter had been ligated.

To what degree these results are to be applied to human pathology, is left to be decided in the future.

SURGERY.

The Treatment of Inoperable Cancers by the Interstitial Injection of Salicylic Acid.

Among the methods proposed for the treatment of inoperable cancers, this one proposed by Bernardt (*Cent. f. Gynaec*), has produced extraordinary results. Not only were the local symptoms (hemorrhages, sloughs, odors, pains, etc.) alleviated and sometimes dispersed, but the general condition of the patient showed marked improvement after a few days. These results led Tofius, of Moscow (*Rev. Med. de Moscow*), to apply these interstitial injections in seven of his cases, with results which he considers far superior to any other method of inoperative treatment. The injections of salicylic acid produce a rapid diminution in the amount of hemorrhage, and sometimes its complete cessation, and also of the sloughing, lessening the pain, and producing a gain in the general condition of the patient, and finally a retarding in the progress of the disease. These results were obtained by the injection every four or five days, after careful antisepsis, of 1 to 4 cubic centimetres (15 minims to 1 drachm) of a six-per-cent. alcoholic solution of salicylic acid, repeated seven to thirteen times.—*Lyon Med.*

Treatment of Gall-Stones and Gall-Stone Colic.

Ferguson (*Journal of the American Medical Association*), gives the following indications for opening the abdomen and exploring the gall-bladder.

1. For attacks of biliary colic accompanied by distended gall-bladder which suddenly subside and no stone is passed. The stone has dropped into the bladder and will attempt its escape again.

2. For repeated attacks of biliary colic where the bladder becomes enlarged and jaundice follows. A stone is lodged in the ducts, and must be removed to obtain relief.

3. For persistent tenderness over the gall-bladder. The interpretation of this sign is that a subacute inflammation has been set up by the irritation of a stone. Such cases have a history of colic, and the results are apt to be gangrene of the gall-bladder, ulceration, (with perforation, causing peritonitis), or cancer.

4. For persistent and marked enlargement. Such may indicate that the gall-bladder contains: a large number of stones or several very large ones; much mucus; large accumulations of bile: mixture of the two above; that a growth, cancer, or tumor is invading its walls. Three operations are open to us, and each should be undertaken according to its own nature.

1. Cholecystectomy: cutting open the gall-bladder and removing the stones from bladder and ducts and closing again, with or without a period of drainage.

2. Cholecystotomy: removal of the gall-bladder entire with its ducts and contents, advisable only in cases of tumor, cancer, ulceration, or gangrene.

3. Anastomosis of the gall-bladder with the intestines.

This is to be done when the gall bladder contains much material, including bile, and after evacution an opening cannot be established between the gall-bladder and the intestine,—*i. e.*, permanent obstruction of common ducts. It is easiest accomplished by means of the Murphy button.

Herpes Zoster Caused by Mental Disturbance.

In the *Lancet* Dr. Antony Roche reports the following case: "There are few diseases more interesting from a physiological point of view than herpes zoster—the common shingles. Looking over my notebook I have been struck with the frequency of its occurrence after some cause producing mental depression or anger. I find this has been noticed by others." Bateman says: "Like erysipelas, it has been ascribed by some authors to paroxysms of anger." Schwartz saw three cases which followed violent fits of passion. I have noted the following cases:

1. A woman suddenly received the news that her husband had been ordered to India. The next morning the herpes was noticed on her left side.

2. An old man learned that a firm in which he was interested had failed. That evening the spots appeared on his left side.

3. A woman was much distressed at the sudden illness of her son. On the following morning the herpes had appeared.

4. A child six years of age, of remarkably equable temperament, was disobedient and sent to bed. She cried very much and the next morning the herpes was noticed on her left side.

5. Recently a woman consulted me whose only son was shortly to be married. She complained of pain in her left side and a rash, which was that of herpes. She herself ascribed the rash to the grief at the parting from her son. I do not know whether it would be right to say *post hoc ergo propter hoc* in all these cases, but I do not think it would be unreasonable. There are many examples of mental disturbance producing sudden tropic changes.—*J. M. M., in American Journal of Commerce.*

The Effects of Unilateral Castration Upon the Prostate.

Dr. E. Hurry Fenwick (*British Medical Journal*), excerpts from his notebooks some twenty cases which may be grouped, according to the issues which have been raised, under the hands of unilateral castration, monorchids, and atrophic testes of minute size (small bean to pea size). He endorses Dr. White's statement with regard to the shrinkage of the prostate after bilateral castration. These cases are taken consecutively and are not selected :

1. Left testis removed for tuberculosis in 1889. Prostate examined in 1890 : left lobe equal to right, both healthy, neither atrophic.
2. Left testis removed in 1863. Examined in 1889 : left lobe of prostate larger than right.
3. Left testis ablated in 1887. Examined in 1894 : very little prostate felt, and what was detected of it was confused ; no interlocular furrow appreciable.
4. Left testis absent ; left lobe of prostate flat, slightly larger than right.
5. Left testis absent ; left lobe of prostate atrophied, right lobe normal.
6. Left testis minute ; both lobes of prostate equal, but flattened.
7. Left testis minute ; left lobe of prostate large, right lobe atrophic.
8. Right testis minute ; right lobe of prostate inflamed and cirrhotic, left lobe small.
9. Left testis very small ; left lobe of prostate larger than right.
10. Right testis pea-sized ; left lobe of prostate very small, half the size of right.
11. Left testis minute ; both lobes of prostate equal, smooth and plump.

In cases 6 to 11, inclusive, atrophy followed acute inflammation. No cause of atrophy is assigned in cases 12 to 20.

12. Left testis very small ; both lobes of prostate equal.
13. Right testis atrophic ; lobes of prostate equal, flattened and cupped.
14. Left testis small ; prostate of average size, left lobe slightly the larger.
15. Left testis cannot be felt; prostate equal-lobed.
16. Left testis small ; left lobe of prostate smaller than right.
17. Left testis small ; prostate lobes of equal size, but flattened.
18. Both testes retained in groin and very small ; both lobes of prostate equal ; became affected by infiltrating primary carcinoma.
19. Both testes in groin bean-sized ; both lobes of prostate equal, but small.
20. This case is interesting ; left testis in groin very small ; patient suddenly affected with gonorrhœal parenchymatous prostatitis ; both lobes were found equal and greatly enlarged.

A Successful Operation of Purulent Pericarditis.

Surgical intervention in pericarditis is so rare as to render the case operated by Eiselberg, and reported in the *Wiener klin Woch.*, of especial interest. The case was that of a boy of seventeen who developed a purulent pericarditis after a stab wound of the pericardium. Puncture of the pericardium having been performed several times without relief, the surgeon decided upon incision. The cartilage of the fourth rib on the left was resected, and the thickened pericardium exposed. After exploratory puncture it was opened by a transverse incision four centimetres in length, and two litres of a sero-purulent fluid were evacuated. The cavity was washed out with warm salicylated water, the borders of the pericardial incision stitched to those of the wound, and two drainage-tubes inserted. Complete recovery took place in four weeks. Examination of the exudate showed the presence of an organism resembling the colon bacillus, but it was of course impossible to say whether its presence was primary or the infection took place through the wound. The writer insists upon the importance of suturing the pericardium to the lips of the wound, the advantages of which procedure in preventing infection of the pleura are evident.—*Boston Med. and Surg. Jour.*

Surgery of the Maxillary Sinus, and Its Progress During the Past Ten Years.

Since rhinoscopy has made the antrum directly accessible through the nasal cavity the pathology of the sinus has been radically changed ; not merely transformed, but enlarged to unforeseen limits ; a host of rhinorrheas, which were formerly regarded as chronic coryzas, are now traced to their true origin within the sinus. An entirely modern form of intra-maxillary abscess has been created, one which is recognized and characterized by the presence of pus in the nasal fossæ.

Although for many years the empyema of the antrum of Highmore has been recognized, the difference between the two is one of degree and not of kind, and the symptoms of the milder form may merge rapidly into those of the classical disease under the existence of certain conditions. The two names, "open empyema" and "closed empyema," are now commonly used to express the difference between the two.

Before the use of the rhinoscopic mirror the diagnosis was based upon the external symptoms alone, but now the suppurative process within the cavity are found to be much more common than was once believed.

The modern form of maxillary abscess is much more difficult to recognize. Its diagnosis does not rest upon one symptom alone—nasal suppuration. Unilaterality, intermittence, fetor are helps, but are untrustworthy ; pus must actually be discovered within the antrum. This may be done, after the method of Heryng, by transillumination, or by catheterization of the natural outlet or exploratory puncture, lavage or aspiration.

As the innumerable variety of operative proceedings for the relief of the old form of Highmore's empyema liternally did not leave a place for a new operation, the treatment of suppuration within the antrum has not made the progress which pathogenesis and diagnosis have. When the operator is thoroughly familiar with intranasal technique, lavage through the natural meatus is probably to be preferred. When trephining must be done the alveolus of a molar tooth is the better site. The opening through the canine fossa should be reserved to use in cases which require tamponnade and curetting.—*Annals of Surgery.*

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ORIGINAL ARTICLES.

ENDOMETRITIS AND METRITIS.

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The frequency of their occurrence, the manifold causes capable of producing them, their persistence and intractability, the numerous and harassing reflexes to which they give rise, and the painful and serious complications from them, invest endometritis and metritis with an importance scarcely equaled by any other disease to which the economy of woman is subject. Inflammation of the mucous membrane of the uterine canal is the most frequent disorder of the female pelvic organs. A vast majority of women seeking advice for pelvic diseases have one or the other of these affections, either independently or associated with some complication. When we consider the accessibilty of the endometrium to external agencies, not only in parturition but also in the non-gravid state, the liability to the extension of specific inflammations from the vagina, and periodic recurrence of the physiological vascularity of its tissues subject to derangement from so many influences, it is not a matter of surprise that endometritis and metritis are of such common prevalence. Again, when we consider the anatomical highways between the uterus and the peritoneal cavity, it is not difficult to comprehend the mode of invasion of the latter when disease exists in the former.

Comparison of the habits, mode of living and physical capacity of a certain class of women with those of women in refined society, would seem to furnish a key to the solution of the causes of uterine diseases so common among the latter. The customs of civilized life militate against the healthy growth and vigorous development of woman. They depreciate her powers of endurance and resistance, and predispose her to the easy establishment of pathological conditions. Among the habits and influences which are pretty constantly operative to lower her physical plane, may be enumerated: neglect of out-door exercise and bodily development; occupations which produce a high-wrought state of the nervous system; improper food; improprieties of dress; imprudence during menstruation; habitual constipation; fashionable dissipation. Reared under bad hygienic conditions, a

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girl reaches the age, but does not acquire the attributes of healthy womanhood. All those modes of life which undermine the general health and lead to feebleness of constitution, predispose to affections of the mucous membranes. It is a matter of common observation that delicate girls are frequent subjects of leucorrhœa as well as of chronic pharyngitis, gastric and bronchial catarrhs, granular eyelids, etc. These local manifestations of the general state are expressions of faulty nutrition and disturbed functions.

History indicates that many of the diseases of women generally prevalent at the present day, scarcely had existence four centuries ago. But infirmities have kept pace with the march of civilization, and in the modern American boarding school may probably be found the culmination of influences which operate against the training of a girl to become a strong. muscular, healthy woman.

As a matter of fact, the average girl inherits the diminished physical development of her educated and elegant mother; and from early childhood, in accordance with orthodox views of discipline and refinement, for many hours a day, she is kept in the close atmosphere of the house when she should be romping in the outdoor air. As puberty approaches greater restrictions are imposed. She is taught that active amusements and vigorous excises are ungraceful and unladylike. To cultivate a pretty figure she is fitted with a corset—the abomination of female attire—and under its constricting action the form of her body is materially changed, and the development and functions of the organs situated within it, seriously compromised. The lower ribs are compressed and the movements of the diaphragm are restrained, which inevitably diminish the effectiveness of the lungs and limit the free swing of the heart. The liver is squeezed, and the peristaltic movements of the intestines are impeded, leading to constipation and ultimate malnutrition. The artificial stricture at the waist interferes with the return current of blood through the inferior cava, and thus predisposes to overdistension of the venous plexuses of the pelvic organs. Another effect of the corset is the forcing down of abdominal viscera upon the uterus and adnexa, crowding them out of place and embarrassing their functions.

At the most important and critical period of the girl's life—the period of greatest functional activity—when her budding mind and developing body are most susceptible of disturbing influences, she is placed in a boarding school. Nowhere is physical culture more neglected than in the general run of female seminaries, where every hour of the day is devoted, by rule, to some special task. Instead of outdoor exercise and diversion, girls are impressed that such pastimes are rude, and fit only for boys. Their hours of leisure are occupied by trivial, passive, indoor amusements, and a daily walk of an hour is considered sufficient exertion to satisfy the requirements of health. Such training, in lieu of making the girl a strong, muscular woman with good appetite and the power of sleeping well, develops the mind and emotions, but hinders the growth of body. The muscular system is replaced by fat and nerves, principally the latter. Thomas has asserted, as a matter of personal knowledge, that, regardless of the presence of menstruation, in some schools the regular routine of physical and mental exercise is not interrupted. "Obviously, at the very time the organs are developing their normal physiological functions, such a course can but produce evil results." Goodell related how, repeatedly, he had been asked by physicians attending such institutions, whether it were possible that laundresses could have drugged the scholars to avoid washing napkins soiled as they would be by healthy activity. I have been informed by ladies who spoke from familiarity with the subject, that amenorrhœa among girls in boarding schools is so common that teachers have come to look upon it as entirely unworthy of consideration. The influence of school life upon the health of females is a serious question. Under existing unhygienic conditions, it should not be surprising to see girls returning home neurasthenic, with pale faces, cold feet, impaired digestion, backache, and disordered functions.

With lowered vitality, the young lady makes her *début*, and social dissipation

succeeds the enervating routine of school life. With slight inclination for outdoor amusements, much of her time is spent in close apartments, in which the air is dry and depressing. It is exceptional to find a lady who walks a mile in a day, or ever engages in any exercise beyond the quietest locomotion. During several hours of the day she is attired in accordance with the requirements of conventional decorum, with a large amount of clothing and ornamental trimming hung from her constricted waist. On state occasions, in full dress (half naked), with arms and shoulders bare, regardless of the temperature or of slight indisposition, she devotes the greater part of the night to the dance, and she scorns winter winds and rain to keep engagements. Rarely is an occasional evening set apart for rest. On the contrary, all are given to visitors and informal parties, and the necessary sleep is neglected.

Impaired nutrition, lassitude, malaise, functional disturbances and pelvic troubles follow as the logical outcome of the vitiated conditions by which our girls are surrounded. With systems enfeebled by habits of indolence, luxury and dissipation, "unfit for the duties of a woman, not up to what Nature demands of her as wife and mother," she goes to the nuptial bed with some lurking uterine disorder; connubial approaches excite a train of pelvic discomforts, and the birth of the first baby, not uncommonly, signalizes the beginning of invalidism.

Beside the constitutional causes—including the various diatheses and cachexiæ—which predispose to endometritis, might be enumerated an almost infinite array of active agencies connected with the pathogenesis of that affection, but a practical purpose will be subserved by mentioning only the more common of them. Such are excessive coitus, tumors in the uterine cavity or walls, injury from sounds and pessaries, any operation whatsoever within the genital canal where strict antisepsis has not been maintained; specific vaginitis, occurring occasionally in newly married women whose husbands considered themselves cured of a recent gonorrhœa; marriage with preëxisting disease; prevention of conception. Parturition is by far the most frequent cause. Mismanagement of, and injuries resulting from parturition; indiscretions during the puerperium; spontaneous or induced abortion. Either of these factors is capable of producing a congested state of the uterine tissues, and inflammatory complications not infrequently supervene.

The affection is often characterized by insidious inception, slow progress, long duration and comparatively mild symptoms. The symptomatology of uterine inflammation constitutes one of the most perplexing subjects in the entire field of gynecology. At times the signs are so slight and obscure that the disease runs a lengthy course without exciting suspicion of its existence. Leucorrhœa, menstrual disorders and nervous derangement may be present for years, without causing sufficient annoyance to demand medical attention. On other occasions, it excites complications which produce pain on locomotion and sexual intercourse; gives rise to an ichorous discharge which causes vaginitis, pruritus vulvæ or cystitis; or it results in painful sympathetic disturbances of digestion, circulation and innervation.

The tendency of uterine disease is to gradually undermine the general health. Its most common manifestations are anæmia, pain, leucorrhœa, dysmenorrhœa, amenorrhœa, metrorrhagia, disturbances of bladder and rectum, digestive derangements, nervous affections, reflex neuroses and sterility. In this connection the important clinical fact should not be omitted, that a series of symptoms, such as pain in the lower part of the abdomen and back, inability to stand or walk, leucorrhœal discharge and disordered menstruation are common alike to most diseases of the pelvic organs, and constitute a serious disturbing element in diagnosis. Disregard of the "uterine syndroma" exposes the womb to arraignment for almost all the ills that female flesh is heir to. It is too often blamed for headaches, backaches, and various other so-called uterine symptoms, which may be due to alterations in the ovaries, affections of the bladder, rectum or stomach, loose kidney or nerve disease.

Whilst no organ in the human body is so overtreated as the uterus, yet at times it is so overshadowed by the dis-

tressing reflexes it excites, that it entirely escapes suspicion. The general health may be so severely compromised that the local disease is completely overlooked. Persistent cough and progressive emaciation excite suspicion of pulmonary tuberculosis; loss of appetite, flatulence, gurgling and gastric discomfort direct attention to the stomach; precordial anxiety and palpitation are attributed to cardiac ailment; cystitis is a common concomitant of womb disease and frequently "draws the fire" of the physician. The pathology of these reflexes is easily explained by the richness of the innervation of the genital organs, which are supplied from the sympathetic through the hypogastric plexus, and from the cord through the internal pudic. The rule should be, therefore, to always inquire into the condition of the rectum, colon, anus, bladder, urethra, kidneys, and stomach, and carefully examine the uterus (by touch and speculum), in every woman with a chronic disease.

The views of modern writers on gynecology regarding the relation of uterine inflammation to versions and flexions of that organ, and to affections of other pelvic organs, are so various and irreconcilable, that whilst one cannot fail to recognize the importance of uterine disease, he is impressed with the evidence of imperfect knowledge of uterine pathology. Some gynecologists refer all uterine disorders to mechanical agencies. They consider displacement to be the primary cause of nearly every morbid state of the womb; congestion and inflammation being merely secondary results. Others maintain that congestion and inflammation furnish the key to uterine pathology, and that all other changes detected in that organ, such as versions and flexions, are secondary affections.

The significance of uterine inflammation as a factor in the production of displacements, can scarcely fail to impress one who impartially studies the clinical history of cases coming under his care. The large, congested and tender uterus, with thickened walls, inflamed and granular mucous membrane lining its cavity and pouring out abundant morbid secretion, accompanied by pale face, backache, lost energy, depreciated general health and hysterical bearing, make up a familiar picture; and it is not uncommon to find associated with such a condition some form of displacement, and likely the consequence of tissue changes in the hyperplastic organ and the altered states of the ligaments which poise and support it. Schultze, a most earnest advocate of the mechanical theory of uterine inflammation, has stated that, "endometritis and metritis are complications which are caused by versions and flexions;" and yet, he admits that these same, "complications may exist primarily and give rise to displacements."

In every-day experience, cases are met with representing the different stages of uterine inflammation, *i. e.*, catarrhal endometritis, prolonged congestion of the deeper tissues, involvement of the parenchyma, uterine sclerosis, and cyst-formation in which there is not the slightest sign of abnormal deviation. It is universally conceded that no circumstance combine so many factors which predispose to displacements as parturition; and a somewhat analogous condition of the uterus is produced by chronic inflammation of long duration. In both situations—as a result of persistent hyperæmia—the uterus is large, heavy, soft and feeble, and the uterine ligaments which owe their strength, mainly, to muscular tissue derived from the former, participate in its relaxation and weakness. But displacement does not follow as a natural sequence in one class of cases any more than it does in the other. After parturition, involution and proper management obviate the accident; whilst in the other instance, the operation of exciting causes is required to produce it. The traction of adhesions following pelvic inflammation has been emphasized as a common cause of uterine deviations, but such inflammation is nearly always consecutive to endometritis. The causative relation of uterine inflammation to flexions is supported by the clinical fact that the latter are frequently relieved by the cure of the former. If the altered state of tissue consequent upon protracted poor health and general debility, congenital defects, lesions of the perineum and the causative influence of inflammatory action be eliminated, it will be difficult to account for displacements

of the normal uterus as a primary condition.

The anatomical relations and functions of the organs situated within the pelvis will explain many of their disorders, as well as the mechanism by which they react upon one another. The blood vessels which supply the uterus and ovaries, the rectum and the bladder, are so intimately connected that a disturbance in one organ is apt to derange the vascular apparatus of the others in varying degrees of intensity. A state of distension, relaxation and congestion of the rectum and colon, if maintained for some time, will induce engorgement of the vessels of the generative organs. Menorrhagia and metrorrhagia are common results of constipation and portal obstruction.

On the other hand, chronic inflammation is susceptible to explanation, not only by continuity of structure, but by contiguity, as has been demonstrated by numerous abdominal sections by many able men in all parts of the world. Bandl states that, in the examination of one hundred uteri, he found disease of the tubes complicating endometritis in more than half the cases. In such a condition, it only requires some untoward circumstance to expel infectious material from the tube into the peritoneal cavity, and thus light up inflammation of structures contained therein. The correctness of this view has been verified by the labors and skill of Mr. Lawson Tait.

The prevalence of uterine inflammation, the insidious influences which predispose of it, the numerous causes capable of exciting it, the complications which may result from it, and their far-reaching and serious consequences, furnishes a subject worthy the most serious consideration of medical practitioners. To liberate woman from the dangers besetting her, is one of the highest duties of our profession.

The first step to be taken is to undo, as far as we can, the wrongs that civilization are doing her. Efforts should be made to correct the mistakes and avert the sufferings which education, luxury, and fashion are imposing upon her. Our girls must be taught that outdoor exercises, such as walking, riding, tennis, rowing, and bowling, are indispensable to the development and maintenance of a strong frame; the pallor and languor betoken disease rather than refinement; that physical health and strength are not only admired, but are essential to beautiful and useful womanhood.

Besides reform in customs, fashions and dress, the girl should be familiarized by her mother with the physiological functions peculiar to her sex. Such self-knowledge would obviate many of her ailments. Girls ought to be educated to comprehend the nature of menstruation, the coincident engorgement of the uterus and ovaries, and the consequent excitable state of the nervous systems, and they should be impressed with the importance of rest, keeping the body warm, and the avoidance of exposure to cold and dampness during its continuance. Through ignorance of its dangers, ladies of the highest intelligence commit acts of the most reckless imprudence during the period of functional activity.

The enlightened methods of the present demand of obstetrical practitioners, faithful observance of antiseptic rules in the lying-in chamber. To insure safety from septic infection, every obstetric patient should be managed with the most scrupulous attention to all the minute details relating to cleanliness; and the physician has not faithfully performed his duty unless he informs himself thoroughly as to the existence of lacerations of the cervix or perineum, and resorts to their repair by surgical means before relinquishing the care of the recently delivered woman. In order that involution may proceed with normal rapidity and certainty, the puerperium should be conducted in strict accordance with modern obstetric rules. Especially should rest in the recumbent posture be enjoined, until post-partum engorgement and weight have subsided and the uterus has again become a pelvic organ.

If the prophylactic measures briefly outlined, viz:—improvement in the physical development of girls; modification of modes of dress and social customs; exercise of intelligent precautions during menstruation; skillful and scrupulous care during parturition and childbed; prompt and complete repair of accidents occuring in childbirth, should be effectually carried out, the number of women affected with pelvic disorders would become wonderfully diminished.

SUMMER DIARRHEA OF CHILDHOOD.*

J. S. RARDIN, M.D., PORTSMOUTH, O.

It has been estimated that more than a quarter-million cases of cholera infantum occur annually in the United States. These figures are more eloquent than words, and should impress its importance upon us.

We do not see its seriousness in the country as in the tenement-house districts of the cities, but the country practitioner is far from free from its effects, and it is not confined to the poor of the tenement-house, but it invades the mansion as well.

The growth and development of an infant is not a question of feeding altogether; it is a question of assimilation, and unless we supply a food which can be appropriated by its delicate digestive organs we will very soon find trouble ahead.

Minert, of Bavaria, has shown that out of four hundred deaths from summer diarrhea, under his observation, only 4 per cent. were nourished exclusively on the breast. Hope, of England, found that only 3 per cent. of one thousand deaths were of breast-fed infants.

From these and other observations, the first great causative factor is error of diet, and this "covers a multitude of sins, both of omission and commission."

Nature prepared but one food for the undeveloped infant, and that is milk from the mother's breast, and, could all children have a wholesome supply and judicious administration of this, our summer occupation would be largely gone.

But, without entering into the reasons, physical, moral or otherwise, why mothers do not always nurse their infants, many do not, and we are brought face to face with the consequences.

We cannot overlook the fact that the digestive organs of the infant are but partially developed, and cannot assimilate the various foods required by the adult organism. Teeth do not make their appearance till the sixth or seventh month, and dentition is not completed until the child is in its teens. This should be a significant point in the dietetics of childhood. The introduction of solid food requiring mastication should be only after the teeth are ready for use. The salivary and pancreatic secretions are absent or limited during the first year, and the introduction of any food containing starch or its allies is hazardous. The stomach is more vertical, and peristaltic action but slightly developed, greatly diminishing the churning process. The whole digestive system is undergoing development in the first years of life, and the introduction of any food in advance of the provisions of nature to appropriate it is disastrous to the welfare of the child.

The question of nourishing those infants who for various reasons are deprived of the breast is one of the most perplexing in the category of the physician. We should hesitate a long time and exhaust every hope of success before consenting to the removal of the child from the mother's breast and placing it upon an artificial diet.

At this point the question of wet-nurse very appropriately arises. Here we meet some serious difficulties. One may not always be found. If so, an element of danger arises which should lead us to be very careful lest the system of the child be inoculated with some pernicious disease. Rotch has shown that breast milk varies much under different conditions of excitement, exhaustion, dissipation, catamenia and so on. Last of all, if a good one can be obtained, the expense attached is too great and beyond the reach of the masses.

The more nearly we can counterfeit mother's milk—and all our efforts are but poor counterfeits—the more nearly will the infant feeding problem be solved. Cow's milk, for various reasons which we will not stop to consider, is the most practical substitute. This, however, is the secretion from an herbivorous ani-

*Read before the Pike County (O.) Medical Society, August, 1895.

mal, and is well adapted to the physical requirements and welfare of the growing calf, with its three or four stomachs, but there are some very great difficulties in the way in adapting it to the use of the human infant. Its chemical constituents are very similar in number to those of human milk, but the proportion is quite different.

Of late years a vast number of prepared foods have been placed upon the market, and under some conditions there may be reason for their existence, but they are all made for profit to the manufacturer, and not "to fill a long-felt want."

I append a table showing the chemical analyses of some of the best known of these foods, prepared according to the directions on the package. The chart shows the average composition of cow's milk and human milk, based upon a large number of analyses. The figures are based upon those of Prof. Alfred R. Leeds, of Steven's School of Technology, as published in the reports of the Food Commissioner of New Jersey for 1885 and 1887.

These products nearly all claim to be a "perfect substitute for mother's milk," yet neither the chemical analysis nor clinical experience justifies any such assertion. They all introduce an element, starch or its allies, which is not only unnecessary for the nourishment of the infant, but is very likely to cause very serious trouble. That is not necessarily a good food which does not kill. A food may be tolerated, yet lack in the elements of nutrition and growth will be stunted and the tissues soft and flabby. The prepared foods are all deficient in fats because their manufacturers have not been able to find one which meets the requirements without endangering the stability of the product, consequently the system suffers for this element of nutrition.

The late Dr. Forsythe Meigs, of Philadelphia, together with his son, Dr. Arthur V. Meigs, developed a *rationale* for the most successful composition of an infant food in his milk and cream mixture. Dr. T. M. Rotch, of Boston, followed up the plan laid out by Meigs, and did much in placing it on a firm footing with the profession.

The composition of the Rotch mixture is but slightly different from that of Meigs':

Fresh milk	2 ounces.
Pure cream	3 ounces.
Water	10 ounces.
Milk Sugar	6¾ drams.

A teaspoonful of lime water is to be added to the bottle at the time of nursing. This formula, prepared from average material ordinarily found in the household, bears very close analogy to human milk, and by clinical experience it is found to come more nearly meeting the requirements of an infant food than anything at present before the profession.

The chemical composition is not the only important point in the preparation of an infant food.

Pasteur, Escherich, Vaughan and others have demonstrated that milk, both human and that of the cow, as it comes from the glands, is free from germs, but that it soon becomes contaminated and constitutes one of the best culture-mediums known for the propagation of bacteria of all kinds.

Pasteur, as early as 1857, demonstrated that the curdling of milk was due to the development of a microorganism which he designated the *bacterium lactum*.

Lister, in following up the investigation of Pasteur, demonstrated that a drop of sour milk introduced into any appropriate medium soon caused a remarkable growth of bacteria of various kinds, and that on again introducing a drop of this latter into fresh milk it would very soon sour.

It is now a well-established fact that the intestinal canal contains at all times a great variety of bacteria.

Booker has studied at least twenty-three different forms in the summer diarrhea of children.

Baginski, in his work published in 1887, described four different species, which he thought were essential factors in the production of these diseases.

Brieger has pointed out the nature of many of the ptomaines resulting from the action of bacteria.

1884, Vaughan, of Ann Arbor, separated from putrid cheese a poisonous substance which he determined to be a ptomaine, a product of some form of

bacteria which he believed to be the *bacterium butyricum*, and he called the ptomaine tyrotoxicon. In experimenting with tyrotoxicon he found that when given to animals in small repeated doses it caused symptoms identical with those seen in cholera infantum—a constriction of the throat, burning at the stomach, diarrhea of choleraic stools, followed by nervous prostration and collapse. In large doses a full-grown cat would succumb in thirty minutes. This is a satisfactory explanation of the epidemics of milk and cheese poisoning, which are not uncommon.

In an epidemic of cholera infantum at Long Branch, in 1886, Drs. Wallace and Newton, on investigation, found that all the persons affected had used milk from one dairy. After a careful bacteriological and chemical analysis of the milk, they separated from that milked at noon a poisonous ptomaine identical with the tyrotoxicon of Vaughan. They did not find it in the milk drawn at midnight. They further observed that persons using the midnight milking were not affected, whilst those using the noon milking, which was delivered in the hot part of the day, were almost invariably affected.

In 1887 Dr. Stanton, Health Officer of Cincinnati, described an epidemic of poisoning which he traced to the eating of a certain batch of cream-puffs from one of the bakeries in the neighborhood. On analysis he found the puffs to contain tyrotoxicon.

This is sufficient evidence to conclude that there may be developed in the intestinal canal at least one product which, under certain conditions, causes choleraic symptoms.

In light of these investigations it will be demonstrated, in all probability, that others are present in diarrheal diseases which bear a causative relation. This field is fertile for future investigations. That bacteria have to do in causing summer diarrhea there is no longer doubt.

The observations of Seibert and Holt, of New York, Baginski, of Berlin, and others, show that there is a marked relation between the prevalence of summer diarrhea and the temperature. They all have arrived at practically the same conclusion, that all epidemics occur when the minimum daily temperature is above 60° F., and stop when the temperature for any length of time falls below this point.

It is of universal note with bacteriologists that bacteria will not propagate in a temperature below 60° F. Infants bear high temperature as well, if not better, than adults, but the prevalence of summer diarrhea is coincident with conditions favorable for the growth of bacteria.

Pasteur, in 1868, observed that if wine be exposed for a short time to a temperature of 130° F. fermentation ceased.

Soxhlet, of Munich, following in the path laid out by Pasteur and Lister, observed that at 95° F., or the temperature of the body, milk curdled 330 times faster than at 58° F., and at a temperature of 212° F. it stopped altogether unless it became subsequently contaminated. He also observed that calves fed on sour milk became "scoured," which ceased immediately after the calves returned to the cow. From these observations he reasoned that milk for babies should be boiled to destroy the germs, and devised an apparatus for this purpose, a description of which, together with some remarkably favorable results with its use, he published.

In May, 1887, Dr. T. M. Rotch, of Boston, set forth the advantages of sterilization. He advised each feeding to be sterilized in a bottle by itself, and not expose the milk to the air till time of nursing.

This was the birth of a new era in the dietetics of infancy, and it is significant that it was brought out almost simultaneously in this country and in Europe, for Rotch disclaims all knowledge of Soxhlet's paper till after the publication of his own.

The question of the digestibility of boiled milk has received much attention. Prof. Leeds has made very careful physiological and chemical examinations on this subject, and is of the opinion that boiling renders the albuminoids less digestible, but that a temperature of 165° F. does not materially affect them. This seems to agree with the accumulated clinical experience of the profession, and Pasteur and others have demonstrated that this temperature is

sufficient for practical purposes of feeding, and that after milk has been thus exposed for twenty to thirty minutes it will remain sweet for several days. This process has been termed Pasteurization in distinction from sterilization, which utilizes the boiling point.

I have used the Pasteurized cream-milk mixture of Rotch the past two years with most flattering success, and, although I have not had so extensive experience as I hope to have, I have yet to record a single failure when properly used.

Careful attention to detail in preparing the food is of the utmost importance, and at first should have the personal supervision of the physician, for there is an astounding amount of ignorance in such matters in people otherwise very intelligent.

For the last three seasons milk Pasteurized by Rotch's process has been on sale in New York City at a nominal cost, largely through the beneficence of Mr. Nathan Strauss. The present season witnessed the opening of such an institution in Cincinnati, under the support of Messrs. J. G. Schmidlapp and A. Senior & Son. Pure, Pasteurized, modified milk, sold at three cents for two six-ounce bottles a merely nominal price.

If these principals, set forth by Soxhlet, Meigs and Rotch, were universally observed, the lives of thousands of infants would be saved annually. It is significant that almost all food for the adult is not considered properly prepared till it is thoroughly cooked, while that of the infant is given raw. I have repeatedly lifted from the crib, the bottle from which the baby had been nursing and found it to contain sour milk—in some cases clabber, which would physic a calf. Not only that, but children are allowed to crawl wherever they please and grasp everything in their reach, the first thing they do is to put it in their mouth, and thus they receive all forms of filth from the floor, toys and things given them by older children.

Teething is held by the laity to be a prominent cause of diarrhea. I dismiss this subject by noting that the gum lance, which formerly occupied a place in every medicine-bag, has retired into "inocuous desuetude," where we trust it will ever remain.

I have dwelt at such length on the subject of feeding, because it is so intimately associated with that of diarrhea.

The medicine of to-day is largely preventive. The treatment of these cases is largely in prevention and management, whilst drugs plays a secondary role. It is our duty to educate the public that this disease is preventable.

The food must be modified to suit the individual case. The mother's breast should be utilized if at all possible. If artificial food must be resorted to, cow's milk, so modified as to suit the individual requirements, should be first tried. It may require much patience and perseverance in some cases, but bear in mind that reward often comes when we least expect it.

Sterilized, modified milk is not only the best substitute for breast milk but it is also cheaper than any of the patent foods. It can be prepared in any home, a sufficient amount for twenty-four hours in thirty minutes, at an expense of less than ten cents a day.

Of scarcely less importance to quality of *food* is that of quantity. Many babies suffer and die from nothing but overfeeding. The fond parent or nurse, being so anxious to see the baby eat and grow fat, cannot be satisfied in simply supplying its actual requirements, but overload its stomach, thereby causing colic, and to quiet the pain they feed it more, thereby increasing the difficulty; when, if they would withdraw all food for a few hours, the pain would stop. Systematic rules, based upon experience in each individual case, should be religiously observed.

If the case be well developed it may be necessary to withdraw all food for several hours, or, as suggested by Dr. Vaughan, to substitute something in place of milk, such as barley-water or flour-ball gruel, until the intestinal canal can be relieved of the decomposing food and attending bacteria, for the continued use of milk affords the best condition for their development.

Clean out the intestinal canal with one or two full doses of caster oil, or a few doses of calomel, $\frac{1}{4}$ to $\frac{1}{2}$ grain each.

If vomiting be continued lavage of the stomach is indicated. A medium-sized Jacques catheter attached to an ordinary fountain syringe will act admirably for this purpose.

There is no doubt of the value of colonic irrigation in these cases, the same apparatus will serve for this, and the process should be repeated once or twice daily in every case of severity. Holt and others have demonstrated that the pathological lesions are confined chiefly to the colon and lower part of the ileum, making it possible to reach them by the high injections.

Recognizing the bacterial character of the disease, much investigation has been made to discover an appropriate bactericide. An ideal one, adapted to use in the intestinal canal, has not yet been found. Many have been highly recommended, some of which are of undoubled value. Of these, bismuth has for many years maintained the confidence of the profession. Whilst it is not a bactericide in the strict sense of the word, clinical experience has demonstrated it to be of great value in this disease. It should be given in much larger doses than ordinarily prescribed. Not less than one to two drachms should be given in the twenty-four hours to a child.

Salol, though not so long in use or so well-known, has gained an enviable reputation. Its virtues, in all probability, are due mostly to the salicylic acid in its composition. The latter has long been known as a preservative agent. Its antibacterial action, preventing the frementation of cider, wines, fruits, etc., early led to its use in diarrhea.

Sulpho-carbolate of zinc is a valuable remedy in these troubles, and should be frequently repeated to get its best effect.

Bichloride of mercury and carbolic acid are too poisonous to be used in sufficient quantities without injury to the patient.

Carbonate of guaiacol, though a quite modern remedy, promises to be of great value as an intestinal antiseptic.

Boracic acid, naphthaline, eucalyptol, thymol, and others have largely been used, but are inferior to those named above.

Opium, in its various forms, has been largely used as a constituent of diarrhea mixtures, and has a definite place, but its indiscriminate use must be deprecated. Nothing can be more injurious than locking up the bowels with its use before they have been emptied of their poisonous contents. It is clearly established that the constitutional symptons, such as fever, nervousness, spasms, etc., are caused by the absorption of the poisonous ptomaines, produced by the pathological bacteria. After the poisonous contents of the intestine have been eliminated the opiates serve a most useful purpose in relieving pain, controlling spasms, quieting the nervous centres, and checking excessive peristalsis. Opiates should always be prescribed separately, and not in mixtures, and only as necessary.

Astringents, which were formerly so extensively used, have very properly been relegated to the waste dump, as useless.

TABLE SHOWING THE CHEMICAL ANALYSIS OF SOME PREPARED INFANTS' FOOD.

Samples.	Water.	Total Solids	Fat.	Milk Sugar.	Cane Sugar.	Starch.	Albuminoids.	Ash.
Human milk	86.76	13.23	4.01	7.00	.....	.....	2.06	.21
Rotch's Mixture	88.42	11.58	4.00	6.26	.....	.....	1.11	.21
Cow's milk	87.70	12.30	3.75	4.42	.....	.....	3.42	.64
Condensed milk	88.39	11.61	2.82	2.77	3.71	.....	2.68	.43
Nestle's Food	90.93	9.07	.19	.60	3.29	4.01	.82	.16
Malted milk	91.87	8.13	.53	5.04	.....	.56	1.69	.31
Lactated Food	90.85	9.15	.68	.58	3.64	3.08	1.05	.12
Soluble Food	91.35	8.65	.74	6.45	.....	Present.	1.02	.44
Mellin's Food	89.93	10.07	1.83	2.46	.11	.....	3.76	.35
Imperial Granum	92.41	8.06	1.22	Trace.	Trace.	.....	3.76	.35

These figures are based upon a mixture of 1 part each of Nestle's Food, Malted Milk, Lactated Food and Soluble Food, to 9 parts of water—about the usual proportions; Melin's Food 3 parts, cow's milk 50 parts, and water 47 parts; Imperial Granum 3 parts, cow's milk 63⅔ parts, water 33⅓ parts.

THE INCREASED MORTALITY OF PNEUMONIA.

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The wide prevalence and great fatality of pneumonia is of sufficient importance to arrest the attention of the secular papers and the *Louisville Medical Monthly*, May, 1895, contains an editorial, from which I make extract, and which is sufficient apology for calling the attention of the profession to this subject.

"The appalling mortality in this city during the past three months, due to pneumonia, has been unequalled in its history. The death rate for the past three years, for January, February and March each year, being as follows:—

	1893.	1894.	1895.
January.	41	26	65
February.	32	16	90
March	31	24	92
Total for 3 months..	104	66	247

It will be observed that the death rate this year is astonishingly large. The totals given for the three years included all deaths due to pneumonia from infancy to old age, but it is a noticeable fact that the majority of fatal cases this year were adults. There has been an unusual freedom from pneumonia among infants this season.

"In seeking a reason for the large mortality many theories have been advanced, none of which satisfactorily solve the problem. It is generally believed that the increased fatalities have been caused by la grippe, and that this prevalent complaint precedes the pneumonic trouble. This is no doubt true in many instances; in others, habits of intemperance may be blamed, whilst in a few age has been an important factor."

Is pneumonia, at present, of a more malignant type? Have the resistive powers of those attacked been lessened? Are the modern methods of treatment less efficient and more faulty?

To a certain degree the first and second queries may be answered in the affirmative; but may not the last be the greater cause?

Since influenza, or la-grippe, has been extant, the aged and delicate especially have been very unfortunate subjects in all attacks of inflammatory respiratory diseases; the present habits of living as compared with those of the past are, also, factors against recovery in many cases; but treatment is by no means satisfactory, and the minds of medical men are in an unsettled state.

Is all done that can be accomplished by the use of remedies to reduce the death rate? Authors and teachers of the period give no encouragement to the idea of aborting, abbreviating, or even modifying the course of an attack of pneumonia. They teach that it must run its course, while the physician looks on without the power to interfere.

The present generation of physicians, educated and imbued with such ideas and practice, cannot be regarded as proper judges of a more active line of treatment, having never tried it. I am, therefore, induced to pen this brief paper by an article on pneumonia in the *Therapeutic Gazette*, April, 1895, which is in accord with my own views and experiences, and which shows a reaction in the professional mind in a more hopeful direction.

The great bugbears of modern times—*exhaustion, debility, heart failure, etc.*, have been overestimated in diseases of inflammatory nature; and stuffing, stimulating, and stupefying with excess of food, alcohol and opiates, have been the causes of ten-fold more victims than the opposite methods—restricted diet, depletives, cardiac sedatives, etc. The illustrious Professor S. D. Gross, than whom there was none in his day greater as an accurate observer and skillful practitioner, in one of his clinical lectures, terms this a most villainous and abominable method in many inflammatory affections. Dr. Hare, in the article mentioned, with reference to aborting or modifying the course of pneumonia, uses the following significant language:

"Having gone so far in our study we are faced by the question, whether there is any drug which can so modify con-

gestive processes as to prevent intense congestion and consequent exudate. I think we have two such drugs, viz.: quinine and veratrum viride. Although I am not wedded to the latter against aconite, I am confident that the aconite is better for children and verat. viride for adults. The circulatory excitement incident to the beginning of an infectious inflammation can be antagonized by the use of sedatives, just as the circulatory excitement due to any cause can be so influenced; and the result sought for, under such circumstances, is not because of an excited circulation, in itself harmful, but rather that indirectly the vaso-motor spasm forces a greater quantity of blood to the hyperæmic area which is infected. It is not necessary to describe the scientific facts which we have at our disposal, to prove that verat. viride is a useful vaso-motor depressant, and that its effects last so short a time that there is no danger of its producing a permanent cardiac depression. Cases of death from verat. viride poisoning are medical curiosities, so safe is it.

Brought to bear at the proper time, the stage of excitement and congestion, and carefully watched, there certainly is far less danger and risk of depression than in allowing the inflammation to proceed to consolidation, when the obstructed pulmonary circulation is sure to result in an over-taxed and engorged heart, with its frequent sad ending, heart failure.

The modern bacteriologist and the chemist, with microscope and test tube, have made many brilliant advances in discovering the causes of diseases. We most gratefully acknowledge their labors, but on the lines of therapy and of treatment they have not kept fully abreast the times, but rather have they diverted the young physician from a knowledge of established remedies of acknowledged merit.

I will not enter further into the treatment of pneumonia, and I am aware that I will be subject to criticism by those modern ones, versed in the scientific lore of the day, who have never dared to try the active plan of treatment. It is well, however, to review many things pertaining to the therapy of disease, before condemning the older methods. The "traditions of the fathers," although largely empirical, are not to be taken for naught; rather prove all things, and hold fast to that which is good.

Value of Weather Forcast to Agriculture.

On the other hand the farmer has much broader interests in the weather. He wishes to foresee, not only high winds, but also the rainfall and snow, the temperature changes and sometimes the cloudiness.

Of these the most important is the rainfall in the crop season, when even a small amount may be of great importance. The amount, the time of beginning, the duration and the character of fall (whether heavy or light), are all of importance to him. Hence arises the great interest to the farmer of local storms. The navigator wants timely warning of even general storm; the farmer of the local storms of the warm season. These are thunder storms, squalls, hail storms, tornadoes, cloudbursts and similar phenomena when intense, common showers when mild. They are at most only a few miles in diameter and of a few hours' duration. They are so local in character that they may wet a neighbor's fields but not his own; may wet his hayfield but not his cornfield. The often begin and end suddenly and give warning in the clouds only a short time before they come on. In general the more intense they are the smaller their size and shorter their duration. Their origin and mechanism is very obscure. On the other hand, general storms are hundreds of miles in diameter and last for several days; they come on and pass over slowly; their structure and mechanism are well known, especially at the earth's surface; and the more intense they are the longer is their life, the more definite their path and the more regular their motion. Forecasts for good strong general storms are incomparably easier to make than those for local storms. For the former a verification of predictions of 95 per cent. can be attained with comparative ease, and for some of the great storms of the last few years the record of verification has approximated close to 100 per cent.—*From "The Value of Weather Forecasts to Agriculture and Inland Commerce," by Prof. M. W. Harrington.*

COMMUNICATIONS.

EPILEPTIFORM INEBRIETY.

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In a certain number of cases the drink paroxysm appears suddenly, overwhelming every consideration of duty and obligation, and for a time possessing and controlling the brain absolutely. This may be considered as a nerve storm, during which all rational mentality is abolished.

Most of these cases exhibit periodical alternations of these drink storms. Distinct and uniform free intervals, which can be predicted with great certainty, are common.

The inebriate who drinks to great excess at distinct intervals and abstains totally during the intervening time is an example of the neurotic character of these degenerations. Literally and in appearance such cases represent in one person a type of exemplary temperate living, and a state of alcoholic frenzy, with mental and moral degeneration, recurring within fixed intervals of time. The victim is a rigid moralist and strict abstainer, and by word and example also a temperance teacher of an aggressive type, whose views are emphatic and earnest. Later, he is secretly and openly an excessive drinker and a low intriguer, displaying the most opposite traits of character and conduct. Often such persons assume the rôle of teachers of the drink problem in all its phases, and many persons consider such personal experience has given them a superior knowledge and judgment in such matters.

The length of the free interval in these cases varies widely from one week to two or more years, and in others recurs at distinct intervals not varying more than a few hours.

In some this free interval is very irregular, apparently depending on unknown conditions of environment. In others it follows certain functional derangements and disturbance of nerve and brain health. In certain cases it appears as mysteriously as a flash of electricity in a cloudless sky, with no premonition or hint, and each attack comes in an equally mysterious way.

The clinical history of these cases reveals several distinct classes with widely varying symptoms and conditions. One of the most prominent groups I have met are the insane impulsive periodics. The free interval varies widely. The drink craze comes on abruptly when least expected. Thus, at some unexpected moment, when his presence and judgment are most essential to success and when the drink craze may be almost fatal, he will drink. As an illustration, on the eve of marriage, or some social, political or literary triumph or business success, this delirium appears. He will disappear and conceal his condition, or boldly display his insanity in opposition to all advice or entreaty, then suddenly realize his condition and make a great effort to recover. Intense sorrow and grief, coupled with explanations, prevarications and earnest efforts to repair the losses will follow. Often he will ascribe his recovery to some means or remedy taken at the last moment, and defend it with delirious faith and energy.

He is often unable to give any rational idea for the motives or reasoning which preceded the drink craze.

His memory is always vague as to the nature of his acts—although events may be clear, the higher consciousness is cloudy. The reason and judgment seem to be suddenly arrested by some morbid impulse which palsies every other consideration.

These paroxysms come without an apparent premonition and are a surprise to the victim and his friends.

The drink thirst continues up to a

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certain point, then suddenly dies out. The character of the acts in this delirium vary from maudlin religiosity to wild aggressiveness, and through all degress and forms of insane conduct.

Men in this state will display delirious zeal for the temperance cause and be very prominent in revival and religious charities during the free interval and continue it during the onset and decline of the paroxysm. The height of the attack is marked by coma or extreme delirium, with delusions, hallucinations and hyperesthesia running into intense egotism, ending in a period of bold hypocrisy and self-deception.

This gives way to the normal mental and moral status, which continues to the next period.

Another class of these periodics will display distinct premonitory symptoms of the drink craze, and, like the first class, will be clearly unconscious of it. The more common of these symptoms are degrees of unusual excitement or depression, great business energy or apathy, or especially brilliant mentality or the opposite.

Often they exhibit alarm for their future state, fear of poverty or dread of sudden death. Then suddenly the drink delirium appears and an entire change follows. When this subsides the old delusions are not taken up. Deep depression generally follows, with a partia or total blank of memory, or a delusion of some particularly pleasing or unpleasing event in the paroxysms.

Nor unfrequently marked hallucinations and vague delusions continue for a long time. The drink insanity is sometimes filled with short periods of pretended effort to abstain, of intrigue and low cunning to defeat the efforts of others to help them.

Such men appear at the prayer and temperance meeting, appeal to the benevolent, pass as examples of cure by some strange mental or moral remedies. Egotism seems to be a dominant mental symptom, together with duplicity and prevarication. When the paroxysm dies out all their false character disappears.

A third class, after a period of prolonged sobriety, will have premonitory periods of delusive reasoning, such as ideas that they have some disease which requires spirits as a remedy. They appear in good health and seem oblivious to any past experience in which this same idea preceded former paraxysms. After a drink of spirits as a medicine the drink storm comes on. When this is over they do not stop spirits abruptly, but continue in decreasing doses until final subsidence. Then comes a period of food and health delusions, marked by unusual care of themselves, their surroundings and nutrition.

Such cases are not unfrequently checked in the midst of a drink paroxysm by some powerful mental emotion, as an appeal to their fears, forced change in their surroundings or abrupt shocks to their ambitions or purposes in life.

Often the paroxysm is masked, and breaks out again when these restraining states are removed.

The value of chemical restraint is by covering up the impulse and thus holding it a long time in abeyance, but, as a rule, it always breaks out again.

This class is prominent for the mental symptoms of paranoia and other defects, and are rarely seen occupying positions of trust and responsibility long. They develop general paralysis and melancholy and often die of suicide.

A fourth class are noted by the exact recurrence of the drink cycles irrespective of all conditions and surroundings of life. The paroxysm is sudden and impetuous, and the mind is filled with delirious conceptions of pleasure from the taste and effects of alcohol. This state may be concealed for a time, but grows steadily until full gratification follows. Such cases suddenly assume some burden of reform, with a secret hope to break up their imperative conceptions.

The most careful plans for the concealment of the drink storm are often made, which end abruptly with no especial depression or moral regret.

The memory of acts committed during the storm is cloudy, and the free interval never varies in time, and hence a certain expectation is created in the mind which prepares for it. Many of these cases are engaged in the work of helping others and exhibit strange acts which are only explained by the presence of this fated periodicity. These

cases never give any rational reason or explanation of their conduct, and, as a rule, always try to conceal it. The heredity of these cases is prominent. So far, over 80 per cent. of all cases of periodicity have a neurotic heredity. Insanity, epilepsy, inebriety, hysteria, idiocy, dementia, paranoia, also phthisis, rheumatism and the various organic heart diseases are present in the parents and grandparents, indicating an irresistible neurotic degeneration coming from the ancestors. All these neuroses are interchangeable and may break out in periodic inebriety from special and unknown predisposing causes. The recurrence of drink paroxysm is in itself evidence of a neurotic origin involving the higher controlling centres.

It is a question of great interest to determine how far this neurotic tendency to break out at distinct intervals in morbid impulses for the narcotism of alcohol, is a direct inheritance of whether it be one of the symptoms of obscure disease.

Children of inebriate parents have often a direct hereditary predisposition to use alcohol. Coming from neurotic parents the marked tendency is to arrested growth and development before birth, enfeebled power of adapting themselves to environment for the first few years of life, irregular development and precocious growth in certain cases o puberty.

The degeneration from functional and organic diseases which the system is unable to overcome, the morbid tendency to exhaustion of the higher nerve centres and the faulty maturity of both organic and functional activities. Add to these the common errors of environment or nutrition and the hereditary taint or tendency to develop certain distinct nerve diseases is inevitable. The drink craze as at present understood is a symptom of central nerve and cell debility demanding relief from the narcotic action of alcohol. Why these states of brain anemia or cell irritation should gather and explode at periodic intervals is not clear. The same states of degeneration, both acquired and inherited, appear in epilepsy and other neuroses, showing that they are clearly allied family diseases, only varying in symptoms.

As in epilepsy, the periodic inebriate suffers from disturbance of the co-ordinating and inhibitory apparatus of the higher brain centre.

Nerve energy is not always liberated along motor facts, but through mental areas in the impulse for rest from the paralysis of alcohol. The discharging energy is neutralized by chemical restraint.

The physical and psychical irritation of the brain centres is overcome by continuous narcotism (for the time). Then a period of normal activity follows, in which this explosive impulse is dormant. These paroxysms resemble epilepsy in origin, onset, duration and termination. They differ in being confined to consciousness and mentality, with a central object for relief. After the explosion the mental operations seem normal and along the levels of comparative health. Opium and other neurotics will bring the same relief at these times, but probably they are followed by more organic disturbance, which demands their continuous use.

The effects of increase and diminution of alcohol on brain circulation, and the vaso-motor paralysis, together with reduced temperature, non-elimination of organic products and slowing up of both functional and organic activities to the verge of total suspension. followed by a rapid return to apparent normal states are peculiar to these cases.

In all probability the periodic inebriate is largely a masked form of epilepsy, and is the result of special unknown exciting causes and conditions. The steady drinker will, after a time, have alcoholic epilepsy or epilepsy from continuous irritations of the cortex.

The epileptic will often become a periodic inebriate, manifesting at times a delirious craze for alcohol and then having a free interval of sobriety. The same causation seems to be present in both. The same profound cerebral anemia or irritation that breaks up coordination and perverts nerve energy, may develop into a convulsive discharge through the motor tract, or a convulsive impulse for spirits and relief.

The natural function of the brain to gather and discharge energy is impaired, and the force essential to the normal working of the organic life ex-

plodes at intervals with destructive energy.

These periodicities are more common after twenty, when the organic activities of the brain have become matured, and often subside or merge into some serious nerve or brain degeneration before fifty. In many cases they appear to follow a natural cycle, beginning in a short period of continuous drinking, then a drink paroxysm with long free intervals. The length of this paroxysm increases up to a certain point, then grows shorter. Commencing in a single day or night's indulgence, it grows until it covers two or three weeks of time, then becomes less and less until finally a day or a few hours is the utmost limit of toleration. The system then refuses to retain any more spirits and an intense loathing and repugnance follows. The free intervals likewise change, at first extending over months and often one or two years, then grow gradually shorter until they reach a minimum of a day, then increase until the drink craze finally dies out or death follows.

This rise and decline in the length of the drink and free interval period, points to some unknown law of accumulating nerve force and degeneration. The fundamental principle running through these periodicities is the steady uniform march of degeneration, manifest in explosions of nerve energy for narcotism and relief.

The force generated in the nerve centres concentrates and reaches a degree of tension that is only discharged in the acute delirium and coma of alcoholism. Narcotism from opium, cocaine, chloral and similar drugs, has the same effect with greater prostration and nerve lesions which demand its constant repetition. The narcotism of opium, chloral and other drugs is rarely followed by repugnance and a free interval of relief and rest. Hence, the treatment of these drink paroxysms by the substitution of other drugs is always dangerous.

Is it possible for anyone to be narcotized for a week or more at different intervals and retain normal reason? Does the brain fully recover from these explosions and the chemical and physiological action of alcohol, when used to excess, even though followed by a free interval?

The popular opinion is that such symptoms are often signs of genius and capacity, ard are rarely to be considered as evidence of disease.

Clinical study brings no support to such views, but on the contrary points out grave changes of the higher brain centres, seen in failure to both reason and control the functional brain activities.

While the higher and phychic brain steadily degenerates the lower motor and automatic brain goes on masking and concealing the evidence of disease.

Along the normal lines of every day's thought and work the apparent health of the victim is unquestioned; but vary this, and his real condition is apparent.

Let the periodic inebriate change his occupation and surroundings and this incapacity and unsoundness will be prominent. Practically the periodicity of the drink craze, together with its intense, unreasoning demand for narcotism, is an unmistakable sign of disease.

Literally both the morbid impulse and the effects of its gratification break up the co-ordination and the inhibition of the higher brain centres, impairing the capacity for healthy reasoning and leaving statas of debility and unsoundness.

While the periodical inebriate may live many years and attract no attention, medically he is always the centre of possible grave irregularities, epilepsies and paralyses. His conduct is a succession of disappointments, of failure and losses. Overweening confidence and boasts of strength, and abject failures, are constantly repeated. Many of these cases become paranoics and dangerous to society.

The very complexity of the causes and symptoms make them fit subjects for mental delusions and epidemics, and enthusiastic supporters of all changes and events involved in mystery. The mystery of these drink cycles in themselves prepare the mind for credulous, unreasoning superstition and conduct.

The question of responsibility before or during the paroxysm is frequently raised in criminal cases. Sudden violent assaults have taken place from trifling, insignificant motives. Delusions and hallucinations have suddenly dominated

the mind, and culminated in acts unforeseen a moment before.

The premonitory onset of these drinks storms may be marked by criminal conduct, insane reasoning and unusual acts.

In one case the most adroit thefts of all kinds of little things preceded the drink craze. After the first drink of spirits this kleptomania disappeared. In another case dishonest criminal efforts were made to procure money, or objects that could be turned into money, to be used during the paroxysm. When this was over he used every means to redress the wrongs committed. In another case the most excessive avarice and greed of money possessed the mind. Dishonest acts followed, contracts were made which were contested in courts, and eventually this man lost a large property by his dishonest acts immediately preceeding the drink craze.

Instances have been noted of bold sexual excesses at this time, of short periods of unusual distrust of everyone, of strange desire to inflict injury and punishment on some one.

So far there has been no distinct legal recognition of these conditions. They are distinct insanities, which differ from some of the epilepsies in preceeding the paroxysmal attack, rather than following it. The mind is equally unsound, and as much deranged before spirits are used as when poisoned by alcohol. This fact will appear from a study of the conduct of the case, particularly before the paroxysm, and in many cases after. A man of this class made a will which was contested. It appeared that for years he had been a periodic drinker. Each drink period was preceded by intense melancholy and dread of death. The will was written in this stage and was followed by a prolonged drink excess, and death indirectly from this cause. There seems to be no question of the confusion and general impairment of the intellect in this case, and yet it was held that this man was of sound disposing mind and the will was sustained.

In another case a man who, after a drink excess, had a period of extreme irritability, during which he was violent and committed a serious assault on a servant, was held to be fully conscious and punished accordingly. His physician gave him morphia after the cessation of the drink craze, and later he became a morphinomaniac.

In all these cases the evident mental malformations should be recognized, not as an excuse for the crime or illegal act, but as a rational basis from which to make an ethical adjudication of the case.

No medical witness can rationally affirm sanity in any broad sense, or assume such cases to be of sound mind, and have reasonable power to control. The resemblance to epilepsy in the periodical explosions, and states of brain poisonings, are like so many traumatisms and concussions, steadily and constantly impairing the power of judgment and reason.

In all these cases the facts to be determined are:

1. The periodicity of the drink attacks.
2. The mental conditions which preceded or followed them.
3. The character and conduct of the case in the free interval for purposes of comparison.
4. The act in question and the time and condition of the man when it was committed.
5. The facts of heredity, and his probable degree of mental vigor and health, together with his present state of mind and body.

A study of these facts will most naturally bring out a clear conception of the mental condition of the man, and his degree of sanity and soundness, with consciousness of the act and power of control at the time.

To Prevent Chapping.

As cold weather approaches women try to devise means for preventing hands and lips from chapping. An excellent remedy to prevent chapping is cold cream. The manicurist told me that it also whitens the skin more than any preparation. It has taken the place of the old-time remedy—mutton suet. It should be well rubbed into the skin and gloves—perferably white—slipped on. The palms of the gloves should be slit in several places to allow the air and prevent cramp of the muscles, and the finger tips clipped off. Vaseline should never be allowed on the hands.—*Ex.*

HEADACHE.*

J. S. SHIBLEY, M.D., PARIS, ARK.

By the term headache, is meant pain with the cranial cavity. It is probably located in those sensory branches of the trigeminal nerves, which are distributed to the interior of the cranium, as distinguished from those distributed externally to it. Pain in the latter is termed neuralgia; and while the distinction might seem, at the first glance, somewhat arbitrary, it is nevertheless well marked clinically. True, many cases of headache are accompanied by pain and tenderness in the extra-cranial branches of the fifth pair; but this is a complicating neuralgia, and not of the essence of the headache.

Headache is not properly a disease, but only an expression of some underlying pathological state. In many instances the disease which stands in a causative relation to the headache, is so manifest that the latter is clearly seen to be only one of its symptoms, as is the case in fevers generally. But in a large number of cases the cause is so hidden that the headache is the principal manifestation of the disease process, and it is then spoken of as the disease itself. It is to this latter class of cases that our attention is directed in this paper.

Pain located within the cranial cavity is the characteristic symptom of headache. It may vary in degree from a slight feeling of discomfort to the most excruciating agony. When severe, it is accompanied by an exaltation of the nervous sensibility that makes light painful to the eye, and sound distressing to the ear; while irritability of temper, inaptitude for mental effort, and a feeling of wretchedness and personal unworthiness, add largely to the distress of the unhappy sufferer.

A periodic headache, whose attacks are usherd in by visual disturbances, as hemiopia, dazzling or vibrating points before the eyes, indistinctness of vision, and vertigo, and accompanied by nausea and vomiting, constitutes migraine or sick headache.

For the purposes of this study, headache may be classified into organic, reflex, toxic and constitutional. Organic headaches are those due to disease or injury of the cranium or its contents; reflex headaches are those due to extra-cranial disease or injury; toxic, to certain poisons; and constitutional, to defects of the nervous organization, congenital or acquired, to vices of nutrition and diathetic conditions. This classification is designed to be practically useful, though neither the classification nor the names of the classes are entirely satisfactory.

In what way is the pain and accompanying distress of headache produced? The throbbing pain, the vertigo, and the increase of these by a dependent position of the head and by muscular effort favor the idea of derangement of the cerebral circulation. Moreover, those medicinal agents that are most effective in relieving the attacks are such as influence the circulation. Since the cranium is a closed cavity with rigid walls, it is manifest that its contents can vary but little in total amount. The volume of intracranial fluids cannot be increased without a diminution of that of the intracranial solids; and even a slight variation of the volume of blood in the brain must give rise to considerable variation in the intracranial tension, and hence to well marked disturbance of the cerebral functions. A healthy nervous system is able, by means of the vasomotor nerves to maintain a normal and regular balance of the cerebral circulation. But given the presence of a poison circulating in the blood, or disease impressions received from some other organ, and the brain is liable to be thrown off its balance, in less or greater degree, according to the greater or less degree of the stability of the nervous system. Some people never have headaches. These have stable nerve centres. Others are so instable in their nervous constitution, that every disturbing circumstance gives them headache. It will

*Journal of the Arkansas Medical Society.

thus be seen that headache is allied to other neuroses, hysteria, epilepsy, etc., in the common element of nervous instability, which plays the part of predisposing cause. Given this predisposition well marked, and even a slight disturbance in almost any part of the body, is sufficient to cause derangement of the cerebral circulation. In this way originates the large class of reflex headaches.

For the production of the class of headaches herein denominated constitutional, an abnormal state of the circulating medium seems to be requisite. This abnormality may be in the quality of the blood itself, as in anæmia, or it may be some poison circulating with the blood, as in lithemia. We may suppose that a brain poorly nourished by poor blood, is but poorly able to maintain the balance of its circulation, and hence prone to headache. A poison circulating with the blood, may act as an irritant to nerve centres, and thus disturb the balance of the cerebral circulation, and give rise to headache.

Whether the derangement in the cerebral circulation consists in contraction or dilatation, in spasms or paresis, is a question of great interest. It would seem probable that the vessels concerned, are those best provided with muscular coats, that is the arteries, since it is by these that the balance of the systemic circulation is maintained. Perhaps, arterial spasm may characterize some cases, and arterial paresis others, giving rise to the two types of headache that have been denominated anglo-spastic and anglo-paretic. It is to be borne in mind, that when the arteries of the brain are contracted, its veins must be dilated to make room for a constant volume of blood; or if the arteries are dilated, the veins will be diminished in caliber, by the increase of pressure brought to bear on their outer surfaces. May it not be, that the pain of headache has for its immediate cause the pressure of enlarged arteries on contiguous nerve fibers, in the anglo-paretic type; and a similar pressure of enlarged veins in the anglo-spastic type?

Diagnosis is usually established by the sensation of the patient. The existence of pain within the cranium is pathognomonic. It is to be distinguished only from pain in the extra-cranial branches of the trigeminal nerves. There can be no difficulty in the discrimination, except in cases of infants, or the subjects of injury, intoxication, or mental aberration.

The ascertainment of the cause of a headache, may be a matter of much more difficulty. It is one of the first importance as giving a clue to the treatment. Few more complicated problems confront the physician, than the elucidation of some obscure headaches, which frequently recurring, or it may be constantly persisting, rob their victims of every form of enjoyment, and make life itself a burden. Such a case calls for systematic investigation.

Is it an organic headache? It may be due to injury of the cranial bones or cranial contents, by blows or falls; to meningitis, traumatic, septic or tubercular; to syphilitic disease of the cranial bones and meninges; to neoplasms; to degenerative lesions, sclerosis; hemorrhage or embolism; in fact to any structural lesion of the brain or its coverings.

Is it a reflex headache? It may arise from eyestrain, in astigmatic or otherwise defective eyes; from disease of the ear and mastoid cells; from catarrhal disease of the nasal passages and the frontal and maxillary sinuses; from diseased teeth and gums; from enlarged tonsils or indurated cervical glands; or from aneurism or other tumor of any of these regions.

Evidences of any of these causes for the headache, are to be sought in the history of the disease, and in the life history of the patient; and in a topical examination of the cranial and facial bones and their integuments; of the ears; the eyes; the nose and adjacent structures; the mouth and teeth; and the throat and neck. This examination should include the use of the otoscope, rhinoscope, ophthalmoscope and laryngoscope. Finding no anatomical basis for the headache about the head or neck, the organs of circulation and respiration should be interrogated, and especially the organs of the digestive system, and the genito-urinary organs. Many headaches are due to constipation, to imperfect digestion, to over-feeding, or to the use of improper articles of diet. A very serious class of headaches is due to disease of the kidneys, acute

and chronic; and a physician would be reprehensible should he overlook so grave a condition. The important role played by the reproductive organs in the causation of many headaches is indicated by the advent of the attacks, at or soon after puberty, and their subsidence with the decline of sexual activity after middle life. In some neurotic constitutions, actual disease of the sexual organs is not necessary to the production of headache, the slightest excess of indulgence in even physiological functions being sufficient to give rise to it. But it is the female sex who are the great sufferers from reflex headache caused by the innumerable train of sexual ills to which the delicate organism of woman is subject. If indicated by the history, the genital organs should be subjected to physical examination; and no investigation of an obscure case of headache would be complete without repeated examinations of the urine.

A headache may be toxic in origin, arising from the abuse of alcohol, or other narcotics. Inquiry into the personal habits of the patient will usually suffice to reveal the cause and point to the cure, which is the avoidance of the offending agent. Further mention of the treatment of this class of cases will not be necessary.

But after every organ and system of organs has been explored, and the history and habits of the patient have been scrutinized, it will sometimes happen that no cause for the headache has been found. This class of headaches I have named constitutional, indicating by that term that their origin is not in a local disease, but in a constitutional state.

In the organic variety prognosis will depend on the nature of the lesion, the curability or incurability of which, will determine the curability or incurability of the headache. Many traumatic headaches are curable by appropriate surgical treatment. Those due to syphilis are frequently curable, especially in their earliest stages. Those due to tuberculosis are uniformly fatal; as are also those due to neoplasms, except possibly, some in which the neoplasms are so situated as to be amenable to operation.

The prognosis of reflex and constitutional headaches is good so far as the life of the patient is concerned; but as regards a cure a physician should be guarded in his promises. Many reflex headaches can be cured by the removal of the exciting cause, especially where the neurotic element is not predominant. Thus the relief of ocular and aural troubles, of nasal catarrh, of constipation or of uterine disease, will frequently put an end to the headaches.

Constitutional headaches, not being dependent on known local conditions, are less amenable to curative treatment; still where the predisposition is not pronounced, some cases can be cured. Where the neurotic constitution is well marked, a cure cannot be promised; but the degree of mitigation that may be effected, even in incurable cases, is a boon of inestimable value to these sufferers.

Treatment is, at once, the most important and the most difficult branch of our subject. For economy of space and time, let us eliminate from consideration in this article, the treatment of headaches due to local causes, that is, the organic and the reflex, with the remark that their cure is the cure of their underlying local conditions. In the effort to effect the cure of these local conditions, and hence of the headache, we shall need to call to our assistance the resources of the surgeon, the oculist, the aurist, the dentist, the rhinologist, the laryngologist and the gynecologist; not always, it is to be feared, to the relief of our patients. But while the local conditions claim the first place in consideration, the general condition is not to be neglected; and those medicinal and especially the hygienic measures to be noticed in the remarks on treatment of the next class, are to receive due attention here, as regards both cure and palliation.

The treatment of constitutional headaches is palliative and sometimes curative; palliative when directed to the relief of suffering incident to the attacks, and curative when for the prevention of recurring attacks. The former object is to be accomplished by suitable medicinal means; the latter, mainly by hygienic measures. For palliation, our principal reliance must be on agents that influence the vaso-motor function.

In some cases, the vaso-constrictors, as the bromides and ergot are demanded; while other cases require vaso-dilators, as the coal-tar derivatives, antipyrine, antifebrine and phenacetine, and among vegetable remedies, aconite and veratrum. In some cases cardiac tonics are useful, as digitalis and strychnia, and especially caffeine. One of the most effective of this class of agents is guarana in teaspoonful doses of the fluid extract. The tannic acid, in which it is rich, seems in some way unknown to me, to increase the efficacy of its principal constituent, caffeine.

After trial of almost everything that has been recommended for headache in the last twenty years, I have found the most eligible remedy for the relief of a present attack in my own person, to be a combination of phenacetine and caffeine. These are of agreeable taste, have rather an anesthetic effect on the nauseated stomach and hypersensitive palate, and usually give a degree of relief. Some of the most popular headache cures now sold by druggists, consist of acetanilid and caffeine. They are efficient, and, prudently used, are safe. I think, however, that for habitual prescribing, the phenacetine is the safest, as well as the most agreeable of the coal-tar series. Ten grains of phenacetine with two of caffeine form a suitable dose for an adult male. This may be repeated once or twice, at intervals of one or two hours. Of course care is to be had that too great a total quantity of phenacetine be not ingested; and if there is no relief after the second dose, resort should be had to other remedies.

The bromides, of which the best is the bromide of sodium, give some measure of relief in a large number of cases. The adult dose for headache is half a drachm to a drachm, repeated once or twice, at intervals of an hour or two. Five minims tincture aconite root, or better 1-200 grain aconite crystal, at a single dose, will sometimes give relief. A drachm of fluid extract of ergot, in a single dose, at the inception of an attack, will sometimes prevent its full development. A full dose of digitalis or strychnia will sometimes ward off an impending attack; but, for the relief of a present attack, they are greatly inferior to caffeine. Expected attacks, after too free indulgence in the pleasures of the table, may sometimes be averted by the use of pepsin or papine, and of salol or dermatol; the two former of which aid digestion, and the two latter prevent fermentation. Many habitual sufferers from recurring attacks of headache, obtain relief, even after the access of the attack, by resort to a brisk carthartic. For this purpose a saline is most suitable, given in a dose sufficient to purge promptly and freely.

Gentle and long continued manipulation of the scalp, bathing the head with cold or hot water, the application of menthol or tincture aconite to the forehead, temples, nucha, and of strong spirits of camphor to the hairy scalp, frequently give a degree of relief of pain. Perfect rest in a bed in a darkened and quiet room, is an important palliative in severe cases.

Morphia, chloral, and alcoholic stimulants and narcotics generally, are to be avoided in the treatment of headaches, except under very exceptional circumstances. They still further unbalance an already unstable nervous system, and favor the recurrence of attacks. Moreover, the danger of forming or fostering the morphia, chloral, or alcohol habit is very great in habitual headache sufferers. Should recourse to narcotics seem imperative in any case, the hypodermatic administration of morphia is to be preferred as the safest and most efficient. My experience with cannabis indica, a remedy that has been recommemded to prevent the recurrence of attacks, does not warrant me in giving an opinion as to its efficacy.

The curative treatment of constitutional headaches must be directed to the removal of the systematic condition on which the headaches depend. This will sometimes be found to be anæmia, and rarely in this climate plethora. These conditions are, fortunately, usually remediable, and with their cure the headaches cease. The headache of urenic poisoning incident to nephritis or the pregnant state, demand prompt and energetic sedative and eliminant measures too well understood to claim enumeration here. Headaches due to digestive troubles demand remedies addressed to the functions primarily concerned. A judicious regulation of the diet and of

exercise and sleep will usually be found more efficacious than medicines. The latter, however, are not to be eschewed, and their use is to be governed by the well-established principles of therapeutics.

I am of the opinion that many headaches not due to local conditions owe their existence to the lithemic diathesis engrafted on a neurotic constitution, an unfortunate union of two conditions, both of which are notably rebellious to treatment by drugs. This neurotic constitution, of course, cannot be cured, though the condition of the nervous system may be improved by hygienic measures and the avoidance of everything that tends to disturb the equilibrium of the nervous system. Not to mention the use of stimulants and narcotics, the indulgence in sexual excesses, and dissipation of every kind, it is necessary to avoid loss of sleep, excessive application to business or study, especially such as involves confinement within doors, or too prolonged use of the eyes. A cheerful and contented frame of mind is to be cultivated. The narcotic, especially if he be also a lithemic, needs to have all his appetites and passions subdued, his temper softened, and his mind tranquilized by an abiding faith in the great truths of Christianity, and a habitual practice of its precepts. There is no mental hygiene so good as the observance of the sayings of Him who spoke as "never man spake."

For the lithemic diathesis, I know of no drugs worth mentioning in comparison with intelligent hygiene. The great basal fact of the lithemic state is deficient oxygenation, and the proper and natural oxydizer is the air we breathe. This points to abundant muscular exercise in the open air as the true remedy. All others are but makeshifts, and generally poor ones. Muscular exercise that quickens the pulse and deepens and hastens the respiration is nature's means of burning off effete material. Something may be accomplished by regulating the diet. This should be simple and plain, even coarse, consisting largely of succulent vegetables and fruit and an abundance of water. All malt and fermented liquors and spirits, and coffee and tea, and in some cases milk, are to be avoided. The objects to be aimed at are: first, to avoid the ingestion of more nutriment than the system can properly dispose of; and second, to maintain the functions of the excretory organs, the kidneys, bowels and skin, up to their full physiological activity. These objects are best accomplished by regimen, diet, exercise, bathing, etc. Where the patient cannot or will not carry out these measures, resort must be had to drugs, according to the indications of every case; but the necessity for the resort to drugs is to be deplored, and the result of their use, not infrequently, unsatisfactory.

Apparent Double Penis.

At the Congress of Gynecology, Obstetrics, and Pediatries recently held at Bordeaux (*Sem. Med.*, August 21st,) Lannelongue reported the following case: Some years ago a woman brought to him a male infant, aged three months, which passed water both through an umbilical appendix resembling a penis and by the natural organ, which was in its proper place. The jet which came from the umbilical canal described a curve more than 30 centimetres in diameter. On examination, it was found that the apparent abnormal penis was an umbilical hernia caused by the persistence of the urachus. A urinary fistula had been produced on the separation of the umbilical cord. The child having died of broncho-pneumonia, Lannelongue made a *post-mortem* examination. The bladder was injected, and it was then seen that that viscus was prolonged by a channel as large as the forefinger, namely, the urachus, up to the umbilicus. This channel extended into the external appendix, where it opened by an oblique orifice resembling the meatus urinarius. The contractions of the bladder in micturition caused a stream in both directions, umbilical and urethral, hence the double jet of urine seen from time to time; this, however, was exceptional, as the musculo-elastic ring of the umbilicus fulfilled the function of a sphincter and prevented the escape of urine through that orifice. Lannelongue says that this case once more shows the necessity of tying the umbilical cord only after having satisfied oneself that there is no hernia at the proximal end.

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PHILADELPHIA, SATURDAY, SEPTEMBER 21, 1895.

EDITORIAL.

REFORM GOVERNMENT AND THE MEDICAL STAFF OF A PUBLIC HOSPITAL.

We learn through late exchanges, that since the advent of the reform administration in New York City, the course pursued by the Commissioners of Charities and Corrections toward the medical staff of the Harlem Hospital has not been one calculated to inspire confidence among those who expected to see honest, impartial and just dealing with those public servants who, without compensation, had long and faithfully performed the responsible duties attaching to hospital service.

It appears that the Commissioners, under the plea of reorganizing the service, decided to dismiss the entire professional staff of the Harlem Hospital. In a perfunctory way, and admittedly to avoid any direct participation in the transaction, the Commissioners requested the three college faculties represented at Bellevue, and the ex-collegiate in the same service, to replace the old board. In response to repeated demands the Commissioners denied that there were any charges existing. They took this course to escape solicitation for hospital appointments. It seems, however, that a morning newspaper, alleged to be inspired by an ex-member who had been expelled from the hospital service, made several bitter attacks on the hospital management, and that it was in response to this newspaper clamor rather than any other reason the change was ordered. It was a shrewd manœuvre by which the Commissioners thought to avoid odium and to shift from their own to the shoulders of the profession, the burden of responsibility for final action.

It is interesting to note how ethically loyally the colleges acted in the emergency. The *Times and Register* asserts:

"The president of the University Medical College faculty, Dr. William H. Thomson, promised Dr. Manley a re-

nomination, as did the faculty of Bellevue Hospital promise Dr. White; each of these gentlemen entering the surgical service of the Department of Charities and Corrections as alumni, and representatives of these schools, after competitive examinations, the former in 1875 and the latter in 1882.

"The University failed to keep faith with Dr. Manley and ignored him in their nominations. Bellevue, from which we have heard so much on defending medical honor and independence in the late code controversy, stultified itself in disregarding one of its most loyal alumni, ignoring Dr. White.

"The College of Physicians and Surgeons alone has stood out and delayed to move in the matter until they have had an opportunity to investigate the whole affair and determine whether or not it can be a party to imposing a very serious injustice on members of the profession, who have for years served in the performance of very arduous and responsible duties in the public service, and in the end to be treated with much less consideration than common street sweepers."

If this account be true, the institutions first named have displayed, by an action not so unexpected to the profession as unrespected by it, a luminous illustration of that gracious oversight an *Alma Mater*, too often, has for her sons, whose success and reputation makes her fame, and whose loyalty and devotion secures her support. From a business point of view, colleges which, under such conditions, can betray their own alumni are not offering attractive inducements to practitioners who may influence prospective students.

The attitude of the College of Physicians and Surgeons is only what would naturally be expected of a reputable body, which from its very size must move slowly. By comparison with the other faculties, however, that consideration, which is nothing more than ordinary courtesy, is made to stand out in the bold relief of an exceptional virtue.

Finally, in the action of the ex-collegiate we see another instance of the fact that where professional courtesy exists in truth, it is to be found in greatest purity in the profession at large. The ex-collegiate promptly renominated two of the discarded staff.

Of course there are more sides than one to every question but, so far as we are informed, in this instance the arbitrary removal of an entire hospital staff for no apparent good reason, is an unwarranted exhibition of political power, and not to be condoned because perpetrated under an administration that has wrought marvels in purifying the morals of New York City. The unseemly haste with which two of the faculties betrayed and sacrificed their own alumni, might suggest that the action of the Commissioners of Charities and Corrections was not entirely unexpected to them—and not impossibly inspired by them.

At best, the plan of allowing teaching faculties to dispose of positions in the public services has little to commend it. Experience invariably has proved that pedagogy and politics are incompatibles, at least in medicine. The more that politics is mixed with teaching the greater is the deterioration of the teacher, and even the politician is not improved.

Those who best know whence comes the strength and brain of modern medicine would be the last to admit the sources limited to the narrow confines of the teaching faculties. On the contrary, were the members of such faculties restricted to the institutions wherein they professed, and were positions in the public services and in institutions not specifically intended to be educa-

tional distributed among practitioners who are not professors, not only would less mischief be done, but the interests of medical science would be materially advanced, the public much more effectively served, and the very field of medical education itself vastly enlarged, for students would be afforded greater opportunities to learn by observing and comparing the work of practical men. What good reason is there for allowing medical schools to sequestrate all opportunities for doing useful work?

We trust that the new municipal government of New York, which has made so many far reaching and long needed reforms, will open its eyes to the wrong committed in this instance, will rescind its action, redeem its pledges, and protect the public servants who have faithfully and unremittingly performed their duties.

ABSTRACTS.

THE MONROE DOCTRINE APPLIED TO THE PHYSICIAN.

Dr. Orville W. Owen, *Medical Age*, writes:—Is it not about time for the medical profession to insist that the fundamental principle of non-interference by Europe should be incorporated in our medical journals, when from fifty to sixty per cent. of published articles are taken from European sources—when inventions and discoveries made by American physicians are either passed by or slightly noticed, until some foreigner republishes them as his own; when American graduates are treated with undeserved contempt, until a course has been taken in Germany or France? Is it not time to call a halt, and force recognition of our own merits?

If the medical profession of this great country is so poor in mental endowments that editors must look for articles in European centres, let us find it out. But that of all the professions ours should be the one that has not advanced. is as untenable as any other fiction.

America has advanced in one century as far as Europe in ten centuries; within our borders mental growth has kept pace with natural progression, and today our country and our people stand before the world as the brightest types of inventive skill and educational growth. But if we as a profession are the one exception to the rule of progression, then shut us out, build a wall around our pitiable brains, and let us vegetate, "unknown, unhonored, and unsung." Tear from our hearts and brains the names of those that have raised our profession to the zenith; cast out our heroes; wash from the slate the names of our MacDowells, Batteys, Simses; raze from our escutcheons the Hamiltons, Senns, Shurlys, and men of that ilk; send into oblivion the Mitchells, Elliots, Thomases, and the host of other American physicians famous in their day and age. If I write strongly upon this subject, it is because I think strongly. There is no wish upon my part to deny the great work accomplished by foreign physicians—far from it; let us give them all due credit for their discoveries in the realm of medicine and surgery, but not one iota more.

That our editors *do* discriminate is easy of demonstration. I counted the articles, excerpts, and reviews in a leading American journal for the first five months of 1894, and the following was the result: Germany was credited with 105, Belgium with 1, Russia 1, France 61, England and her provinces 37, Italy 2, South America 1, United States 61; total, 269. From European sources, 207; from the United States, 61; balance in favor of Europe, 146.

A case or two showing the injustice done our physicians may not come amiss.

An eminent laryngologist of Detroit published an article some time ago in an Eastern journal, which was translated and republished in a Parisian journal, and in the meantime our erudite American editors passed the original by without notice. But, behold! when retranslated from the French, our faddists scattered it broadcast east, west, north, and south. The writer first published the carbohydrate treatment for uric-acid diathesis, in the *Detroit Clinic*. One single American editor republished it and its forty-nine reported cases. Some two years later a German physician published as his own in a Berlin journal this same treatment, even to the exhibition of magnesia sulphate, but gave no credit to America or Americans; he knew us and our craze for foreign articles too well; and he was not disappointed, for his article was translated into English and published over and over again in American journals, and to-day the non-nitrogenous diet for the treatment of uric-acid diathesis is accredited to a German, instead of to an American.

The iodine-and-gold treatment for phthisis has just been exploited in Berlin without a single reference to its two American originators, Doctors Shurly and Gibbes. Soon we will see this article translated and republished in American journals, and credit given to Germany for the discovery.

The inutility of carbolic acid as a germicide was first pointed out in Detroit in a paper read before the Detroit Medical and Library Association. A year later the same fact was noted in Germany by the great Billroth, who received the honor, if there was any, of the discovery.

One could go on citing case after case, *ad infinitum*, invention after invention, discovery after discovery, accredited to European sources, yet each and every one primarily given to the profession by our own people. But, alas! until the seal of Germany, France or England has been affixed, our editors pass them by as unworthy of notice. The time, however, is approaching when the rank and file of American practitioners will marshal under the Monroe-doctrine banner, and force the medical journals of this great country to take the same stand for the profession as the public press takes in matters political. Woe to the statesman who recedes a step from the old doctrine; such a storm from editorial pens breaks o'er his head, that the in-rushing tidal wave of public opinion buries him deep in a political grave. All hail to the time when our medical journals will take the same stand; then, and not till then, will the faddism that to-day is rampant fall into oblivion; then will the Nestors of the medical profession in these United States take the high position that belongs to them by right; then will the journal that first inaugurates this new order of fair play become preëminent, and its editor earn and enjoy the praise and honor of the whole profession.

There is an easy and safe remedy for this growing evil, and it lies with the medical profession to employ it. Refuse to subscribe to any American journal that within the year publishes more than twenty per cent. of its articles, excerpts, or reviews from foreign sources, Strike at the circulation and bleed the foreign faddism from our (the patient's) circulatory apparatus. Regenerated blood will course through the sluggish system, and the *bacillus Europeæ* will give way to the Monroe-doctrine antitoxin.

So-called Syphilitic Stricture of the Rectum.

Hartman and Toupet *British Medical Journal* admit that some cases of so-called syphilitic stricture of the rectum are directly dependent on a local syphilitic or tuberculous lesion. More often they are caused by a cicatrizing rectitis, in which case the syphilis, if it exists at all, only acts by allowing the infectious process to penetrate the mucosa. The radical cure, by excision of the stricture, may be successful in congenital strictures or where there is a cicatricial band but, excluding these, in nineteen cases of the authors no complete recovery followed the operation. In all cases a rectal discharge remained and generally there was a tendency to recurrence. The latter is easily explained by the persistence of the rectitis.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

Rest in the Treatment of Diseases of the Heart.

Babcock thus concludes a paper on this subject in the *Medical Press and Circular*:

1. The position taken by Fraentzel—that rest is injurious in the treatment of all forms of heart disease—is untenable, and the reasons he assigns are incorrect.

2. Prolonged rest is detrimental, undoubtedly, in cases of enlargement of the heart without valvular disease, particularly if secondrry to arterio-sclerosis, and in cases of fatty or other degeneration of the cardiac muscle.

3. The cause, however, lies in the circulation outside of the heart, and not, as stated by Fraentzel, in the liability of cardiac, liked striped voluntary muscle, to degenerate as a result of prolonged inaction, since the heart muscle cannot during life be subjected to complete repose.

4. When compensation has become destroyed in valvular lesions of the heart, particularly mitral stenosis and aortic incompetence, rest is indicated theoretically and is beneficial in practice.

5. Bradycardia would theoretically contra-indicate prolonged rest.

6. On the other hand, it is called for in paroxysmal techycardia, but should not be maintained, after having shown its powerlessness to affect the heart-rate.

7. Acute inflammatory or degenerative affections of the heart indicate rigid rest in the recumbent position.

The Physical Signs of Abdominal Disease.

The first of a series of articles compiled from Hayem's lectures by Lion (*Arch. Gen. de Med.*, August) on certain forms of abdominal disease, is devoted to the consideration of the effects of compression, or, as he terms it, "corset disease." Judging from Hayem, this is a more complicated condition than would at first appear, for according as the natural conformation of the thorax varies, so constriction by the corset differs in its effects. The author describes three chief deformities. The first is suprahepatic constriction, and is found in women with a naturally large thorax, and of low stature. There is diminution of the antero-posterior diameter, and the lower ribs are displaced outwards. In this form there is downward displacement of the liver, and, in a general way, all the abdominal organs, including the pyloric end of the stomach; the stomach, therefore, assumes an almost vertical position, and the transverse colon becomes V-shaped. In the second variety there is hepatic constriction, the thorax is long and tapers; there is not much external deformity, but merely a tendency to bending outwards of the lower ribs at their angles. In this variety there is diminution of abdominal capacity, the liver increases in vertical extent and presses the pylorus and duodenum against the vertebral column. There is thus no displacement, but compression; the result is dilatation of the stomach towards the pyloric end, with, perhaps, hour-glass constriction as well. The third variety is considered by the author as the most important and the least recognized. It is the subhepatic. The compression takes place at the level of the last ribs and the lower margin of the liver. In many cases a certain amount of shortness of the sternum induces this deformity. The result is a displacement upwards of the liver with consequent tension of the diaphragm. This produces a certain immobility of the diaphragm and the lower thorax, so that palpitation and dyspnœa may be present on movement, and even slight exercise may cause general discomfort. The transverse colon is also displaced, and so with deficient diaphragmatic action constipation is caused, especially as the dyspnœa, etc., induce the patient to lead an inactive life.

The Prognosis of Albuminuria in Typhoid.

Lecoq has investigated this point (*Journ. de Med.*, June 25th, 1895), and shows that albuminuria, though an almost constant condition in typhoid, is also one the significance of which varies. It may appear at the end of the first week or early in the second, and does not in any way affect the course of the disease, being merely the albuminuria of pyrexia. When, however, it appears later, at the end of the third week, it is an indication that grave changes are taking place in the kidney, and that toxic products will in future be eliminated with difficulty, and that uræmia may at any time declare itself. In such cases, even if the attack of typhoid be apparently slight, a guarded prognosis must be given. Although recovery may take place after kidney complications arise, such is not usually the case, the mortality being 66 per cent. Moreover, the quantity of albumen passed is no indication as to what the result may be, for in some cases there is a fatal termination although the quantity has been small. Of more importance is the amount of urine; when this is small the prognosis is grave.

Infective Jaundice.

Banti (*Deut. med. Woch.*, August 1st, 1895) relates a case of so-called simple jaundice, in which, in his opinion, the infective character of the disease was established. The patient, aged 22, presented the ordinary symptoms of slight jaundice, which lasted about a fortnight. The liver was enlarged, as also the spleen. The stools were always colored with bile pigment, so that there was no obstruction of the ducts. The temperature seems to have been raised, and there was frequent nose bleeding. The treatment was by naphtol and salol. While the disease was at its height 3 c.cm of blood were withdrawn from the spleen with a sterilized syringe, and under the usual precautions. The author obtained from this blood a

capsulated micro-organism in pure culture. It did not stain by Gram's method. It was pathogenic to white mice, and when injected into dogs, guinea-pigs, and rabbits it displayed marked pyogenic properties. It was most closely allied to two forms of proteus and to the bacillus of rhinoscleroma. The author does not think that the presence of the micro-organism in the spleen could have been due to a secondary infection. Many of the symptoms presented by the patient were in favor of an infective process, and the micro-organism present was closely allied to pathogenic forms found in man. The fact that it did not produce jaundice in animals does not, in the author's opinion, invalidate his conclusions. Some micro-organizms have a hæmatolytic action. It does not follow that every case of simple jaundice is due to this micro-organism. The author would divide jaundice into the toxic and infective varieties; the latter may own many causes. It remains to be shown how often the B. icterogenes capsulatus causes jaundice.

Puberty in Infantile Hemiplegia.

Leblais (*Publications du Prog. Med.*), states that observations made by him in M. Bourneville's clinic show that certain trophic changes associated with infantile spasmodic hemiplegia are only to be noted as puberty. Differences in the size of the testicles were noted in eight out of 29 boys examined. In seven of these the testicle on the hemiplegic side was smaller than on the sound side; in one it was larger. Retention of the testicle in the inguinal canal seemed to be more common than among normal children. Among the girls the only abnormally noticed at puberty was that in one case the mamma on the paralyzed side was hypertrophied. As a rule the hair developed at puberty less well on the paralyzed side, but sometimes the opposite was the case, in others the development took place unequally, but the inequality was not symmetrical; in others, again, development of hair was normal on the two sides. Puberty developed in the hemiplegic children at the same age and with the same phenomena as in healthy children.

SURGERY.

Carbolic Acid Gangrene.

Lannay (*Annales de Méd.*) states that a considerable number of cases have already been recorded in which carbolic dressings have caused gangrene. He relates the following case to show that this may result, as he believes, even when a weak solution of carbolic acid is used. The patient is a man aged fifty, who, during the war in 1871, suffered from a frostbite of the right foot. From this, however, he recovered without losing any of his toes. In 1894, after exposure to cold, the same phenomena as in 1871 showed themselves. but after three months the patient was again cured. In December of the same year, after exposure to cold the toes of the right foot became bluish, and the pain being worse in the following month, a doctor recommended a carbolic foot bath. Three baths of three-quarters of an hour were taken each day, a solution of about three per cent. being used. In the interval between the baths the patient kept a wet dressing of the same solution wrapped round the fourth toe, the one most effected. After three or four days of this treatment the fourth toe began to show signs of dry gangrene, but the patient persisted for some days in continuing the treatment without consulting his doctor again. He was then found to have a dry gangrene of the whole of the right fourth toe, which Lannay considers to have been determined by the carbolic acid. He points out that the solution used was made without any alcohol or glycerine, that under these circumstances the carbolic acid may not be completely dissolved, and undissolved crystals may come into direct contact with the skin.—*British Medical Journal.*

When Not to Trephine for Brain Tumor.

Lanpher gives the following rules:

1. It is useless to attempt operation in cases of undoubted brain tumor, when the growths are situated in the corpus callosum and the optico-striate region.

2. It is questionable whether or not operation is advisable in cases in which the usualy smptoms of tumor are accompanied by disturbances of speech as the only "localizing" sign; the lesion will probably be found to be near the speech centre, as one would infer, but affecting the pons, medulla and the point of origin of the cranial nerves.

3. Nystagmus, either unilateral or double, permanent or temporary, complicated by paralysis of the motor nerves of one or both eyes constitutes a barrier to operation as the trouble is unquestionably basal.

4. When nystagmus appears in the history of a case suspected to be tumor, associated with epileptic attacks or hemiplegia, the tumor may be upon the convexity just behind the fissure of Sylvius, but so often that is not the location that operation cannot be advised.—*N. W. Lancet.*

Shortening of the Femur: Its Causes and Significance.

In all cases of shortening of the lower extremity it is highly essential to investigate the condition of the neck of the femur. If this plan be followed as a regular rule the explanation of many cases of shortening, otherwise puzzling, will be rendered plain. The causes of shortening of the femur may be classified as follows, viz.:

(*a*) Impacted fracture of the neck of the femur.

(*b*) Arrest of growth of the neck following disease the result of injury.

(*c*) Disease of the hip joint.

(*d*) Arrest of growth at the lower end of the femur from disease of the epiphysis.

(*e*) Arrest of growth of the lower end of the femur following disorganization of the knee-joint.

When the shortening of a leg amounts to a quarter of an inch and no more, the defect may be disregarded; oftentimes, this is present naturally. Again, half an inch shortening is by no means infrequent after fracture of the thighs. In measuring for any shortening that may be present in a lower limb, it is a good plan first to compare the length of both limbs from the top of the great trochanter to the external malleolus. If the measurement be the same on both sides, then it is obvious that the shortening must be confined to the neck of the shorter femur.—*Thos. Bryant, F.R.C.S., in Med. Press and Circular*

THERAPEUTICS.

The Thyroid Treatment of Psoriasis.

At the French Congress of Internal Medicine recently held at Bordeaux (*Sem. Méd.*, August 17th), G. Thibierge stated that he had tried the thyroid treatment in 11 cases of psoriasis. The substance was given for varying periods from a fortnight to two months in daily doses of from 2 to 8, and exceptionally 12, 16, and 20 g. of fresh uncooked thyroid, and in total doses of 72 to 288 g. The general effects were the same as those seen in cases of myxœdema treated in the same way, namely, headache, pains in the limbs, gastric disturbance, tachycardia, asthenia, and loss of flesh. The loss of weight in the majority of the patients exceeded 6 kilos. in less than 6 weeks, and it was not checked by the excessive appetite which the patient showed after an inital period of anorexia. Nevertheless, the doses being equal, these general disturbances were less marked than in the myxœdema cases; the author concludes from this that in the latter the effects apparently due to the treatment are in part also due to the disease. The therapeutic effects of the treatment on psoriasis were nil in 3 cases, including the one in which the largest doses were given and thyroidism was most marked. In the other 8 the effect was good, but did not extend to complete cure, local treatment being always required to get rid of the lesions. Therefore, in Thibierge's opinion, the thyroid treatment is not a specific for psoriasis, nor should it be employed as a matter of routine. It should be reserved for refractory cases in which all the ordinary methods of treatment have been tried in vain, and the effect should be very carefully watched.

Action of Antipyretics on the Blood.

At the French Congress of Internal Medicine, recently held at Bordeaux (*Sem. Méd.*, August 17th), Hénocque presented a communication on this subject. He began by pointing out that one of the antipyretics most in use, namely, antipyrin, has a powerful hæmostatic action. This property he claims to have discovered in 1884, in the course of some experiments with the drug. The hæmostatic action is local and its mechanism is vasoconstriction and retraction of the tissues, with formation of a minute clot which is extremely retractile and aseptic. Antipyrin has also a favorable effect on cicatrization. The action of antipyretics on the blood when administered in toxic doses may be summed up as a transformation of oxyhæmoglobin into methæmoglobin. A phase of anæmia or diminution of oxyhæmoglobin precedes the accumulation of methæmoglobin. In this period there is at the same time production and elimination of methæmoglobin; if elimination is hindered, or transformation is too rapid, phenomena of cyanosis may be produced which must be distinguished from those of the period of intoxication. These various phenomena may be studied hæmatospectroscopically, and the influence of antipyretics on the activity of reduction of oxyhæmoglobin, that is to say the energy with which changes take place between the blood and the tissues will be recognized, and the influence of antipyretics on the activity of elementary oxydations will be determined.

Antipyretic Effects of Guaiacol Externally Applied.

At the French Congress of Internal Medicine, recently held at Bordeaux (*Sem. Méd.*, August 17th), Lannois read, on behalf of Bard of Lyons, a paper on this subject, in which it was stated that the external application of guaiacol may be dangerous, first by the sudden fall of temperature which immediately follows the application, and, secondly, by the nervous depression produced by repeated applications. Bard distinguishes the antithormic effect, which is transitory, from the antipyretic effect, which is lasting. In typhoid fever the method should not be employed on account of the long duration of the disease; in erysipelas and in pneumonia, on the other hand, it is very useful. In tuberculosis its effect is very useful. In tuberculosis its effect is favorable only in a certain number of cases of interstitial granular formations without complications, such as suppuration, peripheral pneumonia, etc.—Rondot (*ibid.*) stated that, applied to the skin, guaiacol causes lowering of the temperature with profuse sweating, these two effects not always being of equal intensity. It sometimes happens that two or three hours after the temperature has begun to fall it rises again to a high level; this is a reactional pyrexia which must be taken into account. There are indeed cases in which the temperature, instead of going down, at once rises from one-half to one degree. Contrary to what is seen after the administration of other antipyretics, guaiacol causes polyuria. It is important to regulate the dose, as alarming hypothermia has been in some cases. A solution of 50 centigrammes of guaiacol in oil or glycerine should be employed. Applied to the skin the drug is useful in all febrile manifestations of tuberculosis. In fevers, both in children and in adults, it is sometimes very serviceable, especially in typhoid. The application should be accompanied by the administration of heart tonics.

GYNECOLOGY.

Dangers of the Curette.

Pichevin (*Ann. de Gynec. et d'Obstet*), believes that the curette is of high value, but the more it is employed the more its dangers must be borne in mind. Abortion has been produced, and even relatively advanced pregnancy has been mistaken for simple enlargement of the uterus or interstitial fibroid, to the dismay of the operator. Septic troubles have followed the use of this instrument, but with antiseptics this accident is very rare. Far more insidious is the danger from overlooking pelvic abscess: a pyosalyinx has been burst with fatalresults. Uterine atresia due to abuse of the curette has been noted by two authorities only. The most probable and frequent accident is perforation of the uterus by the curette itself. In 1854, Richard, a great supporter of Recamier, noted a case of perforation. It was soon found that, as in the case of perforation by the uterine sound, the results were far less serious than theory would lead one to suspect. Still there is no fear that the operator, discovering the accident, will think it a trifle. As to the causes, softness of the uterine tissues, especially in the puerperium,

greatly increases the chance of perforation. The uterus, in some reported cases, may have been wounded by the dilator before the introduction of the curette, which then receives blame which it does not deserve. Ignorance and roughness have certainly been the sole causes of the accident in some instances. One operator confessed that he once sent the curette clean through the uterus till it lay so deep that it could not be withdrawn without the aid of a long handled forceps. The walls may have been soft, but no doubt there was want of caution in this case. As a rule, the perforation takes place close to one of the cornua. Turning to diagnosis, Pichevin notes that in one case, in which perforation was suspected, the curette had simply slipped into an abnormal cornu. The theory of catheterization of the Fallopian tube has been brought forward to explain certain cases where curette has slipped far into the patient's body without evil results. The phenomenon itself, however, has seldom been satisfactorily demonstrated, even in the case of the uterine sound. Symptoms of perforation vary from total absence to the most alarming subjective and objective conditions, such as profound colapse and the appearance of a coil of intestine at the vulvar orifice. Hence there is no rule for treatment. Pichevin holds that hysterectomy is too severe a measure in an average case. When the curette has penetrated the wall, and the antiseptic solution injected during the scraping process has entered the peritoneal cavity, Douglas' pouch should be opened and drained.

MISCELLANEOUS.

On the Care of the Ear During the Course of the Exanthemata.

Walker Downie, M. D., (*Journal of Laryngology, Rhinology and Otology*), states that of 404 cases of *otitis media suppurativa* in children the cause in about 60 per cent. was fairly determined to have been measles, scarlet fever, whooping-cough, mumps, or teething.

From the very beginning of the illness, where there are any catarrhal symptoms, the patient should be directed to use the handkerchief frequently and strongly, the object being to clear the nose and naso-pharynx of muco-purulent products and so prevent them from settling and decomposing around the Eustachian orifices, through which infection of the ears takes place. If the child cannot do this efficiently, the Politzer inflation-bag should be used. The quantity of secretion dislodged and thrown into the mouth by this means is astonishing. When there is dullness of hearing or pain in the ears, resort to inflation should never be delayed.

When the pain in the ears is acute, and should immediate relief not be obtained from inflation, and especially if there is a sudden rise of temperature without other explanation, the tympanum should be punctured without delay. Have the head securely held ; have the membrane brightly illuminated ; use an arrow-shaped paracentesis knife with a shoulder ; puncture the tympanic membrane in its lower and posterior part. The operation not only relieves the immediate pain, but saves the deeper structures of the ear and prevents the misery of a chronic otorrhœa with its attendant risk.

Metorrhagia and Ruptured Hymen Caused by Bicycle.

The bicycle craze is spreading, writes a Paris correspondent to the *Medical Record*, and several of our most eminet physicians may be seen almost any Sunday morning wheeling gracefully and quietly along the now shady avenues of the Bois de Boulogne.

No question has aroused more discussion and difference of opinion in the Academy of Medicine than that of bicycling—indeed it was discussed at several stated meetings, being warmly advocated by some, and as strongly condemned by others. The consensus of the Academy's opinion seems to be that moderate exercise on the bicycle is advisable in neurasthenia, anemia, dyspepsia, gout, and obesity, in all cases of slowness of nutrition, and where moderate muscular movement is required. It is absolutely forbidden in phthisis, organic disease of the heart, and albuminuria. Married women and young girls are fast following the example set them by the men—the latter especially. For them it is not ill-suited, but dangerous. The writer knows of two cases of metorrhagia brought on by mild bicycling, and another of ruptured hymen from falling on the pummel. Some have immovable bicycles in their bedroom, the framework being screwed to the floor and the wheels moving just as on the road. The amount of injury done to the pelvic organs of young girls just reaching womanhood will not be long in making itself felt in the shape of uterine versions and flexions, or cellulitis, to say nothing of other such serious complications as those mentioned above. The Parisian gynecologists will undoubtedly soon have more than they can conveniently attend to if matters continue as they have begun.—*Medical Review.*

Tuberculosis of Bones and Joints; the Future Field of Litigation Against Corporations.

The author concludes an article on this subject as follows :

"I think we are justified, in the light of modern progress, in testifying—as impartial experts—to the following things :

"1. Pott's disease, hip-joint disease, white swelling, and most chronic joint affections are tuberculous, and that "scrofula" has no existence, being but an attenuated tuberculosis.

"Family history is unimportant, as tuberculosis is always acquired—never inherited. The presence of tuberculosis in the family simply gives a better opportunity for infection.

"3. Infection may occur in very early life, the germs lie dormant for many years in the lymph glands, and local tuberculosis develops only after an accident.

"4. An injury to a bone or joint must be slight in order to cause tuberculosis. If severe, the resultant inflammation or hypernutrition is not favorable to the proliferation of the bacillis

"5. An injury alone can never produce tuberculosi The bacilus must always be present in the system, or be introduced into a wound at the sight of injury.

"6. Per contra, bone or joint tuberculosis would never develop without a slight local injury.

"7. If, after a railroad accident, falls, wrenches, or other accidents may possibly have occurred, the local trouble may be due to them as well as the railway injury. There must be a direct sequence to attribute the disease to the local injury."—*Lamphear* (*Internat. Jour. Surg.*)

Inflammation of the Middle Ear of Infants.

Dr. A. Hartman (*Deutsche med. Wochenschrift*) gives the results of investigations of this subject in the Institute of Infectious Diseases, Berlin :

1. Post-mortem examinations and examinations of the ears of living children establish the fact that 75 per cent. suffer from inflammation of the middle ear.
2. Inflammation of the middle ear can nearly always be determined by an otoscopic examination.
3. The symptoms of the otitis media consist of restlessness, elevation of temperature and loss of weight. Sometimes these symptoms are not present.
4. Very often the symptoms of otitis media are connected with broncho-pneumonic processes. Probably both processes are due to the same process, viz., aspiration.
5. Death can result in cases of otitis media, slow stone atrophy, or from an extension of the micro-organism into the cranial cavity (meningitis), or into the blood (septicemia).
6. The inflammation of the middle ears of infants must receive treatment suitable for the varying conditions.

Eclampsia of Pregnancy With Amaurosis.

Rabczewsky (*Przeglad Chirurgiczny*, vol. ii, part 3, 1895) has come across an instance of convulsions during pregnancy in which every fit was regularly preceded by a transitory amaurosis, as well as by œdema of the face, which was also of short duration. Two sets of convulsions occurred during one pregnancy, the first about the end of the seventh month, four attacks taking place within 24 hours, the second in the course of the eighth month, when two fits were observed. After the last convulsion a healthy child was delivered. The mother recovered perfectly. The two prominent symptoms above mentioned developed before each of the six fits which took place at two epochs of pregnancy. Olshausen has been able to collect only three cases of eclampsia in which the fit was preceded, as in Rabczewsky's patient, by an aura.

Calculus in the Fallopian Tube.

Cullen (*Johns Hopkins Hosp. Rep.*, vol. iv, 1895, p. 26) describes and figures an S-shaped calculus concretion, nearly one inch long, in a diseased tube. It was composed almost entirely of phosphate of lime. On pressure it was soft and yielding. The patient had been an invalid for many years, and suffered chiefly from some gastric disorder. She had also acquired the morphine habit subsequently to an attack of rheumatism several years before operation. The pelvic trouble is reported as very acute, only beginning about ten days before the parts were removed, the patient catching cold. The temperature at the time of operation was 105°, and the patient was in a state of extreme collapse. An exploratory laparotomy was performed, and the right tube and ovary were removed. The patient grew rapidly worse during the brief operation, and died seven hours later. No necropsy is reported. There was hydrosalpinx, the tube being also inflamed and the ovary involved.

Vulvo-Vaginal Leucoplakia and Cancer.

At the Congress of Gynecology, Obstetrics, and Pediatrics, recently held at Bordeaux (*Sem. Méd.*, August 21st), E. Monod said that vulvo-vaginal leucoplakia, though much more rare than leucoplakia of the mouth, is practically identical with that affection. Like it, it shows a marked tendency to undergo epitheliomatous transformation, and it is one of the causes of primary cancer of the vulva and vagina. When the condition exists the indication is to remove by way of prevention the affected parts when the limited number of white patches allows that to be done without too great mutilation. Where the lesions are confluent the case should be kept under careful observation, so that surgical intervention may be made at the slightest suspicious appearance. Epithelioma of the vulva and vagina, when it can be definitely recognized, should be completely removed at the earliest possible moment, but the chances of recurrence, either local or in the glands, is very great.

Treatment of Hypospadias.

Laurent (Extract from the *Bull. de l'Acad. Royale de Med. de Belgique*, 1895) reports a case in which an extensive cleft along the under surface of the penis was, after failure of other methods, successfully closed by the following operation: Two parallel incisions, each about 2½ inches in length, were made in the left groin, reaching from the lower part of the abdomen to the upper part of the thigh ; the intervening portion of skin having been detached from the subjacent fascia, a bridge-shaped flap attached above and below was thus formed ; under this bridge of skin the penis was then passed, its inferior surface being directed forwards, and the cut edges of the patent urethra were fixed by sutures to the raw posterior surface of the skin ; the operation was completed fourteen days later by division of the flap of skin above and below the part which had contracted firm adhesion to the under surface of the penis.

Gastric Digestion after Gastro-Enterostomy.

Debove and Soupault (*Bull. de l'Acad. de Med.*, August 6th, 1895) have studied the process of gastric digestion in a man, aged 37, on whom Terrier had done gastro-enterostomy for pyloric cancer. The patient was greatly relieved by the operation ; his gastric symptoms disappeared, and he gained 38½ lbs. in three months. Examination by means of test meals showed that there was still gastric stagnation, that peptic digestion was almost inhibited by the absence of H Cl., and that shortly after each meal bile and pancreatic juice flowed back into the stomach without causing any inconvenience. The case was further interesting from the fact that the physical and chem-

ical signs led originally to the diagnosis of cicatrising ulcer, in spite of which malignant disease was found at the operation.

Saline Infusion in Cases of Suppression of Urine after Surgical Operation.

McBurney (*Annals of Surgery*, August, 1895) has reported to the New York Surgical Society a case of suppression of urine after operation for the removal of a large calculus from the right kidney, in which the patient, a man, aged 50, recovered after the injection into a vein of the arm of a quart of salt solution. The operation on the kidney was attended with but moderate bleeding, no ligature and no packing having been required for its control. In the course of the next twenty-four hours nausea began, and was soon followed by vomiting, headache, and symptoms of uræmic poisoning. There was no voluntary discharge of urine, and only 4 drachms were obtained by catheter during the first twenty-four hours after the operation. The saline infusion was followed in the course of a few hours by the discharge of 34 ounces of urine, and the patient steadily recovered. In the discussion on this report reference was made to a case of total suppression of urine after an operation for gangrenous hernia, in which striking improvement had followed similar treatment. It was also pointed out that Dickinson had in the *British Medical Journal* called attention to the fact that patients could be aroused from diabetic coma in a few minutes by saline infusion.

OBSTERICS.

Spontaneous Rupture of the Umbilical Chord in the Utreine Cavity.

Funke (*Centralbl. Gyn.*) reports a case of spontaneous rupture of the cord in the uterine cavity of a II. para of 40 years of age, who, before commencement of labor, lost in the same day, at two different times, a very large quantity of liq. amnii. Towards evening, with beginning of the contractions, beating of the heart was no longer heard. When the woman tried to urinate she felt something ribbon-like fall into the vessel, which proved to be the torn end of the cord, whose extremity bore no trace of clots. At this time the cervix still measured one centimeter. To expedite labor bags were introduced. Five hours later the woman gave birth to a dead child ; blood did *not* flow copiously.

Examination showed that the chord was torn from its place of insertion, without opening the abdominal cavity. The diameter of the surface of section is eight millimeters, a small blood-vessel passes this level by one centimeter. There was also a strip of amnion. The place of rupture is smooth, the cord presents no trace of alteration, the vein is empty, the arteries contain clots near the knots. The cord is very friable, and tears easily between the fingers.

The place of placental insertion was a little excentric.

The vessels of the amniotic side are completely empty and become detached under form of whitish striæ.

The uterine surface is pale and ragged, especially towards its centre, placental substance is wanting at this place and is replaced by a black blood clot.

The author seeks to interpret the case. He explains the premature rupture of the "water" as in all probability due to over-distention of the amniotic cavity, the patient having suffered from hydramnios quite marked.

The infant's death resulted from the retro-placental hemhorrhage and not from rupture of the cord, for if it were due to the latter cause the infant would have lost a notable quantity of blood by the torn cord.

The author eliminates successively traumatism, criminal interference and obstetrical examination.

Therefore the rupture was spontaneous and was produced as a result of hypertension of the cord ; drawn, it happened to detach the central portion of the placenta, but in an incomplete manner, and as the traction became too great the cord gave way at its thinnest point.

Rupture at the point of abdominal insertion of the cord has been observed in precipitate labor (Werder, Dupuy). As to the cause of tearing he believes that it could have been produced as a result of engagement of the "seat," or by rotation of the trunk around its longitudinal or transverse axis, changing from an oblique position to a longitudinal position. The factors at work in these cases at issue have been very thoroughly studied by Schatz (Arch. Bct. viii., 75.—*Bull. Gen. de Therapeutic, etc.*

PATHOLOGY.

Death by Lightning.

Dürck (*Münch. med. Woch.*, July 30th, 1895) describes the morbid anatomy in the case of a man struck dead by lightning. There was an abrasion of the skin on the left side of the forehead where the current entered. There were extensive hemorrhages over the left parietal, frontal and temporal lobes. Fluid blood was found in the heart and veins. There was hyperæmia of all the abdominal organs and chronic enlargement of the spleen, probably malarial in origin. The brain substance was very soft, but without œdema. The author thus summarizes the results that have been found in recorded cases of death by lightning or by the electric current: (1) The blood is deficient in coagulating power, which latter may even be entirely lost. (2) Circumscribed or extensive hemorrhages due to the tearing of vessels in the course of the current are generally present. (3) There is frequently a destruction of parts of organs. (4) The site of the entrance and exit of the current is usually marked by superficial or even deep wounds resembling burns. As regards the figures on the surface of the body further investigation is needed to establish their direct relation to the electric current.

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ORIGINAL ARTICLES.

WHAT IS FEVER, AND HOW IS IT BEST MANAGED.*

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Certainly fever is abnormally high temperature in the animal or human system; but before we speak of abnormal temperature let us consider what normal temperature is, and how it is produced and maintained at a certain standard.

How is animal heat produced? By oxidation, by hydration, and by motion. The nitrogenized food substances are oxidized into urea or uric acid, leaving the body with the urine, and taurocholic and glycocholic acids, leaving the body with the bile. Comparatively little heat is produced thereby. A much greater source of heat is the combination of hydrocarbons with oxygen; the carbon therefrom forming carbonic dioxide (CO_2). This reaction is generally considered the greatest source of heat, but there is a doubt within my mind about that. There has been for a long time a controversy among physiologists whether water was produced in the animal organism; but what should become of the liberated hydrogen when its mate, the carbon, joins with the oxygen? It certainly then and there also, in most part, joins with oxygen, forming water, and must thereby necessarily produce the same amount of heat as so much hydrogen produces upon combining with oxygen outside of the body. By no other chemical combination is so much heat produced as by the junction of hydrogen and oxygen to form water.

Physiologists now agree that from one to two pounds of water is produced in the human organism in twenty-four hours, which estimate may be still too small; but at that it gives us a great amount of heat.

Heat produced by hydration occurs principally in the stomach and alimentary canal during digestion; but probably also in the blood, in the tissues during assimilation, and also during retrograde metamorphosis. Another source of heat exists in all the other varied chemical changes going on in the body, and lastly by the mechanical friction produced by the circulation of the blood and lymph, and the motions of all organs and extremities. A sensible amount of heat is produced by the action of the glands on the blood; the blood leaving the glands warmer than it was when entering.

*Read before New York State Medical Association, 1894.

Having considered the source of heat we now come to the greatest wonder in nature, that is, the successful regulation of the bodily temperature at one certain standard, and there is no similar standard for anything else in the animal system. Yes, whether we are in a temperature of sixty degrees below zero Fahrenheit near the poles, whether we are in the temperate zone, or in the tropics, with the outside temperature very many degrees warmer than the normal temperature of our blood or our body, our system, while in health, will successfully, though laboriously, and with inconvenience, keep our body at the same standard temperature of about a degree below 100 Fahrenheit.

The maintenance of the bodily temperature in very cold weather is directly explained by the increased ingestion of food, and by the increased assimilation and oxidation of the same, especially the hydro-carbons. See how the Laplander drinks with delight oil in greater quantity than some of us drink water, and it is necessity with him; he has to supply his bodily stove with light burning material of the greatest heat-giving power; and in order to oxidize it well he must force the draught by increased respiration and by increased activity generally.

The other extreme, that of keeping the bodily temperature below that of the surrounding atmosphere, though the system must, in order to live, produce additional heat, is accomplished by keeping down the ingestion of food at a minimum; the digestion and assimilation at a still lower point. Respiration and oxidation are kept at the lowest degree possible. All the general bodily motions are performed with sluggishness and indolence, for which those persons living in hot climates must be pardoned, as increased activity means increased heat. Only one function is performed in excess of all others, that is perspiration that is the function which keeps the outside of our body wet with an almost watery fluid. Evaporation from the surface, by transforming a fluid into a vapor, needs a great deal of heat for its accomplishment, and being in opposition with the body takes the necessary heat from the body. The air in hot climates is generally dry, therefore evaporation goes on very rapidly; were their atmosphere at any time completely saturated, or nearly so, like we have it here very often, human life in the tropics would be impossible; they would all get a "physiological fever." Increased physiology, beyond wide limits generally, but here within very narrow limits, becomes pathology. This, besides an increased evaporation from the lungs by the expired air, and free drinking of cool drinks and the use of cool food substances, comprises all that nature can do to keep down temperature.

In an analogous way as they cool their own body they cool their drinking water in tropic climates. Keeping it in an unglazed earthen jar, where, percolating through the walls of the vessel, and thereby keeping the outside of it constantly wet in a perspiration, as it were, evaporation goes on constantly, cooling the water many degrees. Thus we see how nature accomplishes this great marvel in a very simple way.

So much for normal temperature. Subnormal temperature I shall not consider. This brings us then to hypernormal temperature, that is, fever.

We know that fever, besides the increased temperature, is attended with other variations from the normal standard. If these other variations did not exist, then there could not be increased temperature, as the latter is one of the results of the former. Every fever is due to one of two conditions, either heat production is above par or heat abstraction is below par, or the two conditions are working together. When one compensates for the lack or excess of the other, then still we have no fever.

What are the causes of excessive heat production? We must seek the cause in the nervous system which regulates it. We see throughout nature that ways and means are provided for self-preservation under adverse conditions. This obtains when we become sick, when we become *diseased*, when the nervous system, instead of being *at ease*, becomes at *disease*, through something going wrong in the body. The nervous system then becomes differently affected, *i. e.*, irritated, and naturally reacts differently than under normal conditions. Then there is instituted a peculiar condition, with increased activity of the

heart and lungs, and resulting higher temperature, by which nature tries to correct matters, that is, if the nervous system has not lost its power of control, either temporarily or permanently, by shock. This is called the reaction of the system; in other words, fever.

Thanks to the splendid discoveries of the last few years, we know that most of our diseases are due to foreign living organisms and their products within our body. We further know that such a heat as our body can possibly bear in way of fever is not able to kill off pathologic organisms. If such were the case we should endeavor to secure a sufficiently high temperature to kill them off at once. It is really too bad that this is not so, but unfortunately they live better and propagate better and more rapidly at the body's fever heat. This does not look like self-preservation, and still the organisms are killed off and their products are eliminated during fevers. Is it done by phagocytosis? Is it done by an increased oxidation process? By the micro-organisms themselves becoming oxidized? Or by some other process of which we are ignorant? The fact remains, it is, in most cases, accomplished during fever. If not accomplished, unless the system acquires a tolerance to their existence, death must be the result. It is, as it were, a race between the micro-organisms and the activity of the system.

We all know that fever heat, especially when reaching 105°, 106°, 107°, or 108°, does great harm in the system; yes, the highest degrees of fever kill a patient very promptly. I have never seen a temperature above 108° (I have never seen it as high as 112°) without the controlling nervous system losing its influence and resulting in convulsions or coma, followed by death promptly.

Now what is the modus operandi by which high temperature hurts and kills? Let me here relate an experiment. S. S., a young man of twenty, contracted to keep his foot for twenty-four hours in water of 110° Fahrenheit. The temperature of the water did not vary one degree above or below. I had to cut short the experiment, for lo, in six and a half hours his foot was blistered. A number of days later we tried the other foot at a temperature of 108° and here the temperature did not rise at any time above 109½°. In ten hours that foot was also blistered. The heat only acted on his foot from the outside, while he had cooler blood circulating within to mitigate the effect. How much more harm would the heat have done had his foot been like a sponge with fluid of these temperatures streaming through it.

When we have a fever temperature of 107° the radiators,—the blood vessels—like in a hot-water heating system, must be several degrees warmer, than the tissues heated thereby. How must the nervous system, the finest tissue of our body, suffer, and especially the brain, with its enormous vascular supply. So long as the nervous system performs the function of a "thermostat," so long the temperature of the body will not rise above 107°, or at the most 108°, which seems to be the physical limit at which the body can exist without actually becoming burned or cooked by its own heat. Is it to be wondered at that cases of extreme high temperature are always either in a state of delirium, convulsions, or coma? I suppose you will agree with me, that a fever is in most cases necessary for the system in order to overcome its hostile intruders, like defensive war, the fever excitement of a nation.

The fever is necessary, but the heat thereby produced is not, yes, it does great harm. A slight elevation of temperature affects in the first place the appetite and digestion. The higher temperatures, especially if long continued, hurt the nervous system, and weaken the heart, on which latter organ there is so much dependence during a fever, and the injury is probably by the pernicious effect of the heat upon the cardiac-ganglia. When weakness of the heart has set in, the blood cannot be propelled sufficiently through the capillary system of the skin, to set the sweat glands in action, or to heat the skin; consequently radiation of heat from the surface becomes almost *nil*. The internal temperature must rise, with accumulation of blood in the large blood vessels of the internal organs, interfering with their normal functions. Certainly those cases, where extremities and surface are cold, with a high internal temperature, are the most unpromising; unless the

heart can promptly be roused by stimulants and food, and a prompt reduction of the internal temperature effected, life's chances are extremely small.

We have seen that super-normal-temperature is harmful; yet it is necessarily produced by the acceleration of life's processes, which in turn are necessary to cope successfully with those hostile intruders. Now, what to do with this pernicious by-product, physically unavoidable? The answer to this question is practically, how is fever best managed? Certainly not by hampering the system in its efforts to overcome the trouble, but by encouraging it, and by leading off, and by relieving the system of this harmful by-product, hyperpyrexia, and in that way giving the nervous system a chance, as it were, to let the horse go without the necessity of curbing constantly life's processes, for fear of overheating.

In the taking away heat from the body, we must take hints from Nature herself, how she manages this matter in health. Nature wets the body in health by perspiration, but only those parts of the body which are too warm. Nature lets a person drink much water, cool, if he can get it, if he is not too warm inside. Nature propels the blood to the surface in order to set the sweat glands acting; also, by carrying more heat to the surface greatly increases direct radiation of the same. Therefore the maxim ought to be, never obstruct the access of heat to any part or surface of the body where there is subnormal or only normal warmth; but take it only from where it is in excess, either from the trunk or head, or if these surfaces are only normal or subnormal, and we have at the same time a high temperature in the rectum, let us then give our patient an internal bath of cool water by injection, and from above encourage cool drinking. The water injected, in quantity as much as can well de accommodated, ought to be retained long enough, say ten to thirty minutes, to allow it to get heated to near the temperature of the body. The water should at first be used with any notable chill off, but as it is well borne, the water may be used cooler. The injections are to be repeared, as each case demands, to keep the temperature down, either every two or three hours, or in extreme cases every half hour.

Heat abstraction from the outside should as much as possible be steady, best by putting only over the superheated surfaces a wet, thin pack, only a single layer of cheesecloth, or other thin material, constantly kept wet with water; or to insure the effect by something more volatile, as alcohol and water, or vinegar and water. This is certainly better than a cool bath; the patient is not disturbed, heat is only abstracted where necessary, the cloth is only sprinkled from time to time, the temperature of the sprinkling fluid should be warm enough not to awake the patients when sleeping, or to shock him when awake; the abstraction of heat is steady, and can easily be regulated by more or less wetting, or by using more or less volatile fluids; the extremities, if cold, can at the same time be warmed; by allowing a current of air over the surface, or by fanning, the effect can be still further increased.

By keeping thus the temperature down below 102° F., we find that our patient does not lose his appetite, but that appetite and digestion are frequently well maintained; much is taken, much is digested and assimilated, and in this way it is possible for a person to pass through a lengthy fever without losing much, if any, in weight. But in abstracting thus the heat, one is surprised how quickly it is reproduced—how many calorics must be abstracted—until the desired end is accomplished, then the fever drops, sometimes slowly, sometimes almost at once, but the natural time period of which ever essential fever it might have been, is very much shortened from what it would have been by allowing the process to go on at full speed. Thus I have now, for several years, treated a great variety of febrile conditions. Certainly I do not discard medication, where we can kill poisonous germs directly; or where we can otherwise aid the system, for instance by favouring the movement of the overheated blood to the surface, or by toning up the heart; as by small doses of quinine, for its general tonic effect, aconite to relax the capillary circulation, or Dover's powder for the same purpose, especially where also pain is a feature.

strophantus, digitalis, strychnia, etc., when the heart—upon which so much depends—needs stimulation. Carbonate of ammonia, however, is the best cardiac stimulant on which we may depend in case of need, may any or all be indicated; but generally diminution of temperature with highest nutrition is the best support to the heart and the system in general. Antipyrine or antifebrine I never use for their antipyretic effects. In fact, I never use an antipyretic remedy. Alcohol I rarely use, and then only in fevers of short duration, where we hope to reach the crisis in a short time, and before the alcohol has, by exhausting the nerve power, does its harm.

As a conclusion, let me sum up in a few words the essence of my paper; Fever is a laudable process, and generally an effort on the part of the system to overcome and eliminate harmful substances, living or dead. Fever is produced by an acceleration of life's processes as regards retrograde metamorphosis. The constructive metamorphosis is, unless hyperpyrexia is kept down, seriously interfered with. That we should not hamper the system in its effort, but support it, and simply abstract that vicious, but unavoidable, by-product, hyperpyrexia; at least try to keep it down under that point where it will do harm to the tissues, and the nervous system in particular.

THE TREATMENT OF METRITIS AND ENDOMETRITIS.

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It ought not be a matter of surprise that some of the former modes of treating uterine inflammation were occasionally productive of more harm than good. The womb being easily reached, seen and treated, is sometimes overtreated, and doubtless, now and then, maltreated. Its tolerance of injury will explain the escape of many women from the grave consequences of blind groping and reckless interference in the earlier days of gynecology, when the merits of cleanliness were unknown. Unskillful methods of conducting examinations with unclean instruments; intra-uterine injections, without preliminary dilatation of cervix; and the indiscriminate employment of powerful caustics not only perpetuated the uterine disease, but, it can scarcely be doubted, at times gave rise to salpingitis, peritonitis and pelvic abscess.

Of late years, material advance has been made in the management of chronic inflammatory affections of the uterus, and we do not now view them in the same hopeless light as formerly. The most decided steps forward are antisepsis and drainage. The complete cleansing and disinfection of the uterine cavity, and provision for the free exit of inflammatory or septic products, are procedures now almost universally employed in discharging of infected cavities, or sinuses elsewhere in the organism. But widely divergent views are held as to the best means of accomplishing those ends. Whilst the majority of gynecologists advocate dilatation of the uterine canal, the use of the curette and the employment of drainage, they resort to different methods of accomplishing dilatation, are not agreed respecting the comparative merits of the dull and sharp curette, and drainage in various ways is commended by different operators, each seeming to be satisfied with his own peculiar plan. The dogmatical adoption of any mode in its entirety, without discrimination, will not secure the best general results in practice. Methods must be varied according to the requirements of individual cases.

Acute catarrhal endometritis yields, as a rule, promptly to simple derisive lines of treatment. Rest in bed, copious hot (115° F.) vaginal douches, warm sitz baths with introduction, while in the bath, of a small wire speculum which

allows contact of water with the cervix, scarification of the cervix, and mild purgatives usually suffice for the cure when there is no great change in the mucous membrane. But when the milder course has been faithfully carried out without satisfactory result, or where menorrhagia or metrorrhagia is the urgent symptom, recourse should be had to dilatation, curettement, cauterization, irrigation and drainage. "Curetting is the rational treatment for catarrhal endometritis when simple methods have failed. By waiting too long, alterations in the mucous membrane will take place, the parenchyma of the uterus is exposed to sclerotic changes and follicular degeneration, and the possible extension of the inflammation to the tubes, so frequent in old cases of catarrhal metritis." (Pozzi).

The cure of chronic endometritis and metritis, of whatever type (granular, fungous, or polypoid), demands the invasion of the interior of the uterus. But the readiest, safest and most effective mode of attack has recently given rise to much discussion and difference of opinion. I invite attention to a line of procedure which is, with trifling modification, the plan inaugurated and warmly advocated by Prof. W. M. Polk. After a somewhat extensive experience of the various types and stages of uterine inflammation, extending through a period of two years, the method has been so satisfactory to me that I venture, with full confidence in its merits, to recommend it. The plan consists of operative interference, supplemented by intrauterine medication when the latter is indicated. The attainment of satisfactory results demands more than skillful performance of the operation; the safety of the patient will depend upon the thoroughness with which aseptic and antiseptic precautions have been carried out.

A general warm bath with soap, flushing the vagina with hot water, disinfection of pudendum and mons veneris with a solution of mercuric bichloride (1:1000), and clean gown are essential preliminaries. On the table, general anesthesia is induced and the vagina carefully cleansed and disinfected with soft soap and hot water and bichloride solution. In the left lateral position, with the use of the Sim's speculum, the uterus being steadied by a tenaculum and, when practicable, drawn down, the cervical canal is freely dilated by some pattern of steel dilators (I prefer Wylie's), the curette* is directed to the fundus of the uterus and with firm, steady pressure the scraping in done by bringing it first over the anterior face, then the posterior, the fundus, the angles and the sides in turn, until all the soft, spongy masses are removed. Finally the cervical canal is cleared of all diseased tissue. The uterine cavity is sponged clean by means of applicators wrapped with absorbent cotton squeezed out of hot bichloride solution, and through a Polk's cervical speculum which has been insinuated into the os internum,† an applicator armed with cotton which has been dipped in carbolic acid, is passed to the fundus and turned about so that the surfaces are everywhere thoroughly touched. The vagina is then liberally mopped with bichloride solution, and a double strip of iodoform gauze, about an inch in width and three feet long, is carried by means of a long probe into the uterine cavity, packing it section by section firmly in place until the entire uterus is filled down to the internal os, when the end of the strip is brought down along the posterior wall of the vagina, and placed just within the posterior commissure to facilitate removal in the event of distressing uterine colic. The operation is completed by loosely packing the vagina with iodoform gauze, sponging clean the soiled thighs and back, and applying an antiseptic pad over the vulva.

The subsequent treatment comprises rest in bed, fluid food (mainly milk) during the first three days, a saline cathartic on the day following the operation, periodic evacuation of the bladder (by means of a catheter, if required), hot fomentations over the hypogastrium, and suppository of one grain of extract of opium, if pain is harrassing. The gauze is removed on the fourth day (unless earlier demanded on account of per-

* I generally employ a sharp curette. By sharp (in contradistinction to the flexible dull instrument of Thomas) I mean that the edges are thin, but not cutting like a keen knife blade.

† This precaution is necessary, as without some such device the applicator will reach the uterine cavity after most of the medicament has been squeezed out in its passage through the cervix.

sistent uterine tenesmus) and a copious hot antiseptic vaginal douche is given. The latter is repeated twice daily to the end of a week, after which it is continued once a day for a week longer. The patient is allowed (barring coexisting complications) to get up on the seventh day, and usually strength speedily improves and recovery is rapid.

A second packing of the uterus has been found necessary only in cases of chronic metritis, endometritis characterized by protracted chronicity, or complicated by disease of the tubes; and it has been accomplished at the end of a week without anesthesia and with but trifling discomfort to the patient.

But three cases have come under my care requiring the use of the curette a second time. One of them being chronic metritis with salpingitis; the other two, gonorrheal endometritis with implication of the tubes and pelvic peritoneum. The second operation was done one month subsequent to the first.

In some exceptional instances, in which uterine discharge persisted, the intra-uterine application, on two or three occasions, at intervals of five or six days, of equal parts of tincture of iodine and carbolic acid was proven sufficient for the completion of the cure.

The operation is unattended by shock, and pain is rarely an annoying sequence. In some instances slight elevation of temperature (never exceeding 100° F.) occurs immediately after the operation, but it subsides after the second day and remains normal. Serous oozing takes place in every case. This continues with more or less profuseness during the first four or five days. The procedure has never been followed by inflammatory change in the pelvic tissues discoverable by careful physical examination. On the contrary, pre-existing inflammatory deposits have either diminished or disappeared. As a rule patients are discharged at the end of a month.

The modifying effect of this treatment of the interior of the uterus upon diseased tubes has been forcibly stated by Prof. Polk and others, and attested by examples within my personal experience, that were too well defined to admit of doubt. The removal of the source of infection cuts off the supply of morbid material from the affected organs, thus restraining diseased action within them, and checking the leakage of putrilage into the peritoneal cavity. It is also probable that in a certain proportion of cases, drainage of accumulations within the tubes is achieved by the displacement of masses obstructing their uterine orifices. If uterine diseases were cured before resorting to laparotomy for the removal of a diseased tube, the latter operation might occasionally be obviated, and it would remove the necessity of sacrificing the unaffected organ as a matter of routine, as is the rule now to prevent the danger of its subsequent implication.

I have been impressed by the frequent association of displacements of the uterus with chronic inflammatory conditions of that organ; and particularly by the fact that a large per cent. of flexions are rectified or improved by the mode of treatment just described. The exceptions seeming to be those cases in which the uterine disease was not cured, or of long standing where probably the tissues of the uterine walls at the point of flexion (on the side to which the organ is bent) had undergone compression and attenuation. Improvement of the circulation, innervation and nutrition of the uterus would appear to furnish a solution of the result.

Beside the clinical evidence in favor of this operative plan, its rationale is supported by common sense, as well as sound surgical principles. Dilatation of the uterine canal insures not only better drainage, but is essential, as a rule, to effectual use of the curette. In some cases of subinvolution it is not required, because the os internum is already abnormally patulous. The curette accomplishes in a few moments what is doubtful of achievement by any other means, even after months of intra-uterine medication and "change of climate." It removes tissues infected by germs, and changed by inflammatory action, and promotes the substitution for them of a "regenerated mucous membrane." The dull curette is to be preferred after labor or recent abortion; the uterine walls being soft and thin, perforation may be produced by very slight force. Iodoform gauze packing has for its object both the drainage and antisepsis of the uterine cavity. It has, also, a

special alterative effect upon the diseased endometrium, which is, to a certain extent, curative.

Endometritis and vaginitis of gonorrheal origin, merit special mention on account of the serious consequences that frequently follow their occurrence. They depend upon each other, and have to be treated together in the most vigorous manner, by curetting, followed by copious intra-uterine irrigation with a solution of corrosive sublimate (1:1000), scrupulous cleanliness and energetic antisepsis of the vagina by daily douches.

The most favorable time for operating, when conditions admit of election, is in the week immediately succeeding menstruation; the only contra-indication, and that of questionable weight, being the presence of concomitant acute inflammation within the pelvis, outside of the uteris.

In every act in which the uterine cavity is invaded, gentleness, cleanliness and faithful attention to details, are of paramount importance.

Should laceration of the cervix and ectropion exist, its repair by trachelorrhaphy will constitute an indispensable step in the line of treatment.

Disturbance of neighboring organs, (bladder and rectum), and of those at a distance, (digestive canal, nerves, etc.), demand earnest attention. It is not usual for organic complications to persist and induce perplexing symptoms after the focal disease has disappeared. There is no function upon which uterine disease reflects more constantly than on digestion; and the stomach frequently bears the brunt of such action. What, at the commencement, was a sympathetic derangement, may become, in time, an inveterate disorder, requiring for its eradication the most consummate skill. The pain which disturbs rest and prevents exercise, the dyspepsia which restricts the dietary and impairs nutrition, the irritable nervous system which depresses and disheartens, all combine to disturb the balance between wear and repair and deteriorate the general health. For their relief, the ends to be secured are freedom from pain, rest of body and mind, sleep, an equable circulation and nutrition.

A brief reference to the cases that have been treated, their complications and results will form an appropriate appendix to this discussion of uterine inflammation. There have been treated during the past two years, in the gynecological service of the John Sealy Hospital, fifty-six cases of endometritis and metritis. Of that number nine were uncomplicated, seven being cured and two deserting the hospital before completion of treatment. The others were complicated as follows: Twelve with salpingitis—endometritis cured in all, salpingitis cured in five, and improved in seven. Eight with salpingitis and pelvic peritonitis—endometritis cured in all; complications cured in four cases, improved in four. One with pelvic abscess—drainage through vigina, recovery. One with cystic ovaries and extensive adhesions—laparotomy, death on the eleventh day from an exhausting diarrhœa. Seventeen were lacerated and eroded cervices—trachelorrhaphy in each case, all recovered. Seventeen with flexions—thirteen ante, four retro; nine of the former and two of the latter cured, remaining six improved (two of the subjects of anteflexion now pregnant). Five with retroversion—endometritis cured, deviation rectified by use of pessaries. Four with stenosis of os, one of which was associated with vaginismus—three cured, one (with viginismus) not improved and is now in a lunatic asylum. Eleven with menorrhagia, nine with metrorrhagia, all cured. Thirteen with hemorrhoids and fissure of anus. Seven with hemorrhoids without fissure. Five with fissure without hemorrhoids. All cured. Two with stricture of rectum and rectovaginal fistulæ—appropriate operations and recovery in both instances. Twelve with cystitis, all cured. Thirty-four with gastric disturbance, many of these persisted after the cure of the uterine disease. Three cases with lacerated perineum—perineorrhaphy in each case, all cured. The causes which gave rise to the diseases in the cases enumerated were, parturition in twenty-two, abortion in nineteen, gonorrhœa in six, stenosis of os in four, chronic constipation in five.

THE DIAGNOSIS AND TREATMENT OF PLEURISY.*

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If it were true that the symptom of pleurisy were identical in all cases, it would be only necessary to memorise the summary contained in systematic treatises on the subject; but as we know this is far from being the case, since the several circumstances contained in idiosyncrasy and the varying power of the causes of this affection, exert such a potent influence in regulating their manifestations in the human frame.

Not a few have been induced by this perplexity to look for some symptom which of itself may determine the nature of the malady and called "pathognomonic." Some of the most skilled have fallen into error in the vain effort to attain such simple indications.

By auscultation and percussion we are enabled to reach evidences that appertain to diseased action in a more direct way than by observing evidences which are occasioned indirectly through disturbed function. From acoustic signs the nature of pathological changes is most largely deduced. In the case of a thickened pleura the relative density of the parts is discerned by percussion; by auscultation we learn that the acoustic properties of the cavity of the pleura are changed by disease, but the causes of these phenomena we must look for elsewhere than in the phenomena themselves.

Crepitation has been spoken of as pathognomonic of pneumonia, but when we consider how often it is that other causes produce the same effect, or so nearly like it as to be almost impossible of being distinguished from it, we cannot fail to see how easy it is to mistake sounds caused by varied conditions affecting structures outside of the lung itself.

With the remarkable similarity of sound between the crepitation of pneumonia and that superinduced by the fine friction of pleuritis we are all familiar, yet after careful auscultation the practised ear will readily discern the relative distance of the sound from the surface, which will so greatly help to clear up the diagnosis. There is a sharpness and clearness, as well as nearness, imparted to the ear by the pleuritic friction sound, as contrasted with the more distant crepitation of pneumonia, that renders differentiation ordinarily not a very difficult undertaking.

Usually pleurisy sets in with a pretty smart chill, followed by fever and pain in the side—the "stitch" of the old authors. These symptoms apply more particularly to acute pleurisy; in the sub-acute types the attack comes on more insidiously, and is the form of pleurisy which we more frequently encounter at the present day. The sharp pain is not then so characteristic, neither is the chill nor the fever. There is, however, more constantly observed a sense of general languor and debility, also a sense of heaviness about the chest, which restricts respiratory effort, and associated with a dread on the part of the patient to take a deep breath or to attempt to cough—all of which constitute symptoms so commonly characteristic as to be regarded almost pathognomonic. In addition there is the peculiar movement of the *alae nasi*, with hurried, shallow breathing, which are also present in peritonitis, though manifesting shades of difference easily discernible.

Auscultation reveals in pleurisy a breath sound more or less suppressed or jerky, occasioned by inability to take a full and steady inspiration through fear of pain; while the expiration is harsh and prolonged. Over the actual seat of inflammation the vocal fremitus is exaggerated at an early period, and friction may also be detected at an early stage.

I am in the habit of relying upon forced expiration quickly performed, as in the act of extinguishing the flame of a candle, for the purpose of intensifying impaired tone of respiration, which would otherwise escape notice in an ordinary examination. I have thought

*Read before New York Association, 1894.

that by a quick, forced expiratory effort any defect of respiratory fuction, however slight. could thus be brought into notice, and at the same time an estimate of the degree of pulmonary action would be facilitated.

When the diaphragmatic portion of the pleura is attacked, symptoms referable to the digestive organs become prominent, and likewise when the lesion is circumjacent to the pericardium, disturbance of function relating to the heart will arrest attention.†

It is certain that if the knowledge of the relation which disturbed function of these remote organs bears to symptoms of pleurisy could be sufficiently appreciated, error in diagnosis would less frequently occur.

The face in pleurisy manifests a peculiar apprehensive expression, which, though difficult to define, is nevertheless full of clinical significance.

Palpatation, percussion, and auscultation are properly regarded as the three great factors in diagnosis, though I have not placed them in the order of their relative importance. By the first it is possible to detect friction, expansion of the chest, and, when extensive effusion has occurred, to appreciate absence of vocal thrill, obtain fluctuation as well as information of levelling of the intercostal spaces. It is well to bear in mind that ronchal thrill may simulate pleural friction, which can only be discriminated by auscultation; then additionally, that loss of vocal thrill, as pointed out by Reynaud, may result equally from gaseous, as well as fluid effusion. Relative modification of sound is ascertained by percussion, as slight or extensive effusion exists or the pleural membrane is thickened, but the same result is noted sometimes in either of the latter two conditions.

While extensive consolidation of the lung may rival effusion, I do not think that its degree of density would be as likely, as in the latter case, to obscure respiration so completely that the ear of an expert examiner would fail to discover at least some faint respiratory sound over a very limited area, especially if the patient is directed to execute the quick expiratory efforts to which I have already referred.

†Trans. of N. Y. State Association, 1893, p. 103.

Piorry has likened a peculiar quivering sensation produced by percussion when the chest is distended with serous effusion, to a condition fulfilled by most hydated cysts, and has given to it the name of "hydated thrill," a term which is very expressive of the state described.

By far the most reliable evidence, however, in all cases, is to be found in clean and neat auscultation, which is possible to be cultivated to the highest degree of perfection.

Soon after pleuritic invasion, friction may be heard and percussion resonance is either modified or dullness may be revealed.

The disease may not progress to the point of effusion, but in some cases, associated with cachexia, a copious effusion of lymph takes place without serum, followed by a dusky red countenance, enforced brilliancy of the eye, shock to the vaso-motor system, resulting in hyperidrosis with diminution of urine, evidencing marked deficiency of chlorides; all of which served to denote that the inflammatory fever tends to a fatal issue. In these cases, friction sound diffused over a large area, is both pronounced and persistent; resembling very closely the crepitation of extensive pneumonia of low grade. Nevertheless, some cases in the early stage are marked with such obscure evidences of invasion, and so little disturbance of either the general health or the function of respiration, that no indications whatever appear to point to the mischief that is going on in the pleura, until large serous effusion créates a sudden embarrassment of the breathing. At this stage the diagnosis is facilitated by progressive dyspnœa, a sense of painful heaviness of the chest; an erect posture with an inclination to the affected side, attended with a more or less anxious and suffused facial expression.

I have observed that some patients will manifest more sensitiveness to manipulation of the affected side, which is more marked, however, when the effusion is purulent. Percussion is naturally dull, its nature being very characteristic and best described as dead, inelastic, and resistant. The respiration, at the base, is absent, while higher up it is bronchial, with expiration prolonged. In children, however, tubular breathing

is sometimes heard through fluid at the base, and when this is noted, it renders a diagnosis of effusion without the aid afforded by the exploring needle, not an easy undertaking.

Aegophony may be heard about the lower angle of the scapula where also metallic tinkling is discerned, but these sounds are less apt to be produced when the effusion is so copious as to occupy the full capacity of the pleural cavity.

I do not attribute much importance to cardiac displacement as an aid to diagnosis except when the effusion is abundant and occupies the left side, as the same condition may be occasioned by mere plastic adhesion, therefore it does not constitute a particular feature of serous or purulent effusion.

The differentiation between pericardial friction and pleural friction, referred to in a previous paper,* depends mainly on its difference of rhythm; and, as so graphically explained by Walshe, upon "the limitation of the sound to either edge, generally the left of the cardiac region; fixity in one or more particular spots; cessation complete, or, what is more common, occasional, with certain beats of the heart, when the breath is held after expiration; and marked unsteadiness in the intensity and quality of the friction, which is heard to one side and not in front of the heart." All these circumstances argue in favor of friction of cardiac rhythm being of pleural rather than pericardial origin. Furthermore, change of friction into creaking is more common in the pleural, than in the pericardium, a circumstance which affords, sometimes, a good point of diagnosis.

Cough, when present, is ordinarily dry, harsh, and ineffective, though occasionally some mucoid expectoration, which is brought up with difficulty, may be observed.

An interesting, as well as important occurrence in pleurisy with adhesion, is a constant desire to clear the throat. Without throat lesion, this is a peculiar symptom, and I believe I was the first who ever called attention to it, in a paper read before this association* a year ago.

I have noted that the character of the effort to clear the throat, affords a very good indication of the locality of the adhesion.

A peculiar "cracked pot" sound is sometimes heard at the apex when the lung is pushed up by an effusion of serum occupying the entire side of the chest, which, being due solely to the condensation produced by the pressure of the fluid below, must not be confounded with the similar sound due to a cavity at the same site in the lung. Some authors refer to the presence of this tympanitic resonance as a condition very likely to mislead in diagnosis; but I think the knowledge of this circumstance will make an examiner look for further corroboration in either instance before a final conclusion is reached.

The relation of dullness and abscence of breathing about the chest to change of posture, affords strong confirmatory evidence of effusion. Again, it is safe to conclude that fluid is in the chest, if a high pitched resonance is detected below the clavicle; though in rare instances this symptom is not present.

When adhesions bind down the lung, and prevent observation of the alteration of breathing by change of posture, the exploring needle may properly be used to clear up any possible doubt. The fear of evil consequences from exploratory puncture, expressed by some, is not well founded, provided due care is exercised in the selection of the site for puncture, with dexterity in its performance, and every antiseptic precaution is assiduously followed. It is my habit to push the integument up slightly, before making the puncture, so that after withdrawing the needle, the layers of tissue readjust themselves in valvular form, thus effectually preventing entrance of air or infiltration from the oozing out of fluid. A thin wad of absorbent cotton moistened with a weak carbolic acid or bichloride solution, covered with oil silk, is then applied over the punctured spot, and held in place by two or more narrow strips of adhesive plaster.

Exploration is often performed with an ordinary hypodermic needle, which is unfit for the purpose, in my opinion, and accounts in many instances for failure to verify the presence of fluid. In the first place, it is not sufficiently long to enter the pleural cavity in mus-

*Trans. New York State Association, 1893, p. 104.

cular subjects, or to penetrate the pleura, when much lymphy exudation coats the pleural membrane; secondly, the calibre is too fine, except in simple serous effusion, to permit of the withdrawal of any fluid through it. A needle especially designed for the purpose should be selected, having a calibre of at least one quarter to one half millimeter in diameter, and two or more inches in length.

Pleurodynia is an affection which may be confounded with acute and subacute pleurisy in the "dry period," but the pain of the former condition is rather of the nature of a catch to the inspiration, than the sharp, darting, and more durable pain of pleurisy. An hypodermic of morphia, with atropia, when there is any doubt, will promptly relieve painful respiration, so that freedom of this function being permitted, the characteristic friction of pleurisy can be readily ascertained.

The early invasion of phthisis, perhaps, most frequently tests the physician's diagnostic acumen, since it is not only often associated with, but in some cases most readily follows, pleurisy.

Cachexia and progressive emaciation are not so indicative of phthisis alone as generally supposed, for they are equally symptomatic of some types of pleurisy, and therefore require corroborative proof of the condition of ill health with which they are associated.

Bacteriologists will tell us that the only sure means of diagnosis is to be realized in the absence or presence of the bacilli of tuberculosis, but we all know how unreliable is this evidence in the earliest stage of phthisis, even when there are other clear indications of tubercular invasion to be observed. Many of us will call to mind cases in which a pleurisy was apparently wholly recovered from, yet, before many months passed by, subsequent definite signs of phthisis appeared, though there were no evidences, bacilli or otherwise, that such pleurisies were tubercular in their nature. We know, also, how often, when bacilli are not present, cases manifestly tubercular progress to a fatal issue. When detected in the sputum, the bacilli undoubtedly afford us valuable confirmatory evidence in diagnosis, but their absence cannot, under the circumstances, necessarily preclude a diagnosis of tuberculosis, and it is not safe to defer a diagnosis until their presence is verified in all cases.

Treatment.—Upon the question of treatment I advance with becoming hesitation, because I address a body of practitioners each of whom is, no doubt, inclined to his own peculiar mode of practice. There is no such thing as a stereotyped plan of treatment for pleurisy, as I have under different forms of treatment experienced excellent results.

There are, however, few maladies in which, at the outset, active and skillful attention are better rewarded than in the management of acute pleurisy. The chief aims are to relieve pain, subdue fever, lessen inflammation, and control, as far as may be possible, the tendency to exudation. The first can best and most promptly be accomplished, by an appropriate dose of morphia and atropia hypodermatically administered; and by encasing the chest in one layer of lamb's wool wadding after applying to the surface a terebinthinate liniment. By the wool dressing a uniform temperature of the surface is maintained, and peripheral sensitiveness to chill prevented. Usually one hypodermic effectually and permanently quiets pain, but there is no objection to its repetition if necessary; however, the embrocation should be applied once or twice daily, until recovery occurs. If the fever is high, a powder containing some one of the antipyretics, combined with calamel and Dover's powder; or the antipyretic with Dover's and James's powders, in appropriate doses every six or eight hours, may be given. Of course, omit the Dover's powder in the first dose, if the hypodermic has been previously administered. In addition to the above treatment I find the spiritus mindererus a very serviceable adjuvant to the therapeutics of pleurisy. By these remedies pain is relieved, the functions of the skin, kidneys, and bowels are favored, and vascular tension materially diminished.

As the digestive functions are always more or less impaired while the fever lasts, some little attention should be paid to the dietary. Nourishment ought to be introduced principally in fluid form. Milk alone, or combined with the powdered beef peptonoids, consti-

tutes a most acceptable form of alimentation. The liquid peptonoids or soups with some form of pepsin may also be advised.

Stimulants are contra indicated except in some rare instances when suppuration threatens, or when in the late stages the vital powers manifest depression from prolonged illness.

Strapping of the chest, after the method of Dr. Roberts, of University College Hospital, to give rest to the respiration, has received the warm support of many physicians; but I cannot give this my approval except it be continued a very limited time. There is no doubt that by modifying chest movement, as well as restricting pulmonary action, pleural pain is materially lessened; but if this dressing is maintained for any length of time, I apprehend serious consequences, affecting both the pleura and the lung, may follow, and structural changes of a more or less permanent character about these parts will take place. If any appliance of this sort is deemed necessary, I have decided preference for an elastic gauze bandage which would answer every purpose designed by the plaster strips, and could be more promptly and easily removed when desired.

Strips of adhesive plaster applied as advised by Dr. Roberts, would admit of so little rib motion, and would lessen to such a degree pulmonary function, that not only would the air vesicles be liable to become clogged with mucus and occasional congestion, but plastic adhesions also of a permanent character would be very apt to take place about the pleura.

In all cases, at the outset, I would favor the general principle of treatment first referred to, with such modifications thereof as each individual case seemed to require.

Usually, no restrictive appliances to the chest are required, and I believe if such measures can be dispensed with, the passive respiratory action being uninterrupted, the pleura and lung will escape changes in their structure, such as I have already indicated.

After the acute stage is passed, friction of the chest may be continued with a liniment composed of turpentine, laudanum, camphor, and oil of sassafras; or a solution of iodine may be applied, one drachm to one ounce of sulphuric ether, as recommended by Dr. Bowditch. If adhesions form, and there remains a sense of soreness over any part of the chest, small blisters in several spots will prove of great value; and iodide of potassium or strontium, internally, will facilitate recovery.

When frequent vesication is desired, I have for some years used pure carbolic acid, and endorse Ollivier's commendation of it in the case of children, where, especially, it is preferable to cantharides.

In subjects manifestly cachectic, the iodide of manganese or iron, together with cod-liver oil or malt in some form, might very properly be prescribed; and I might here add, that the manganese preparations agree better with those pleurisy cases complicated by the tubercular diathesis.

The chloride of iron in some form constitutes one of the best diuretics in some cases with small amount of serous effusion, and also serves as an admirable tonic after aspiration. Anstie recommended its administration throughout the conduct of all cases.

Salicylic acid and salicylate of sodium have not shown, in my experience, any special value in ameliorating or shortening the course of the disease, and I have not considered their use as diuretics superior to chloride of iron, the liquor ammoniæ acetatis, or the acetate and nitrate of potash alone, or in suitable combination. I am disposed to believe with Dr. Parsons,† of Northampton, Mass., that the salicylates may be useful only when pleurisy is secondary to rheumatism, but are not to be depended on in the primary form of pleurisy.

The so-called "thirst cure" and a course of Jaborandi have their advocates, but such cases as would be likely to resist the other remedies I have mentioned, would not, in all probability, be benefited in the least by the two alternatives named.

It would be really diverting, if not so serious a subject, to contemplate the views and opinions of prominent men respecting the value of the various remedies and modes of treatment advocated for pleurisy. What one lauds highly for apparently valid reasons,

† Trans. of N. Y. State Association, 1892, p. 265.

another condemns in unmeasured terms, and that which he in turn declares of superior advantage, another equally learned brother as surely adjudges useless. The fact is that no fixed rules of treatment will apply in all cases. Individual temperaments are always to be considered, and a study of the character of the invading malady must not be neglected.

If the case resists all measures of treatment, and effusion both persists and increases, operative interference becomes necessary. Therefore, when sufficient effusion has occurred, the sooner aspiration is undertaken, the better it will be for the patient. No danger need be apprehended through the procedure. To wait until effusion has occurred to the extent of compression of the lung, so that breathing becomes embarrassed, is not, in my judgment, either prudent or enlightened practice. With Drs. Didama, John Shrady, Cronyn, Truax, and others, I believe that early respiration not only prevents chronic pleurisy, but also wards off other complications.

From remarks made in a discussion which took place, on this subject, at the last session of this association, by Drs. T. H. Manley, John Cronyn, C. A. Leale, and E. D. Ferguson, of New York, McLean, of Detroit, and Dandridge, of Cincinnati, it would be very natural for anyone to infer that aspiration is not so simple an operation as it appears to be; and I am inclined to take the same view of it as they do. I was, however, much gratified to hear the able defense advanced for the practice of aspiration by Dr. Cronyn, of Erie County, whose experience as to its value fully fortifies the opinion in this regard entertained by myself.

When we have to deal with simple, serous effusions, one aspiration will often suffice, though instances do occur when two or more are required to complete recovery. Success in achieving permanent benefit is attributable to both skill in its performance and judgment shown in the extent to which the cavity is emptied. All authorities caution against the too complete withdrawal of the fluid, believing that by removal of the entire amount at once the absorptive power of the pleura may be destroyed and reaccumulation rendered more probable; while there is some danger through such an injudicious proceeding of sudden death from congestion of the lung, occassioned by its too rapid return to its normal condition, there is no doubt that absorption is often so remarkably facilitated and increased by partial aspiration that the case will readily yield to subsequent medicinal treatment without further surgical measures.

In empyema this resource should not find favor, unless undertaken as a measure of temporary relief when pus so completely fills the pleura, and the condition of the patient is so threatening as to render an operation for external drainage too hazardous to attempt. In such an emergency it would be manifestly a better plan to aspirate first, thereby placing the patient in a more favorable condition to withstand the greater shock of subsequent incision.

As to the relative value of the two methods, I am convinced that in empyema the open drainage expedient supersedes aspiration, for through its more thorough means of evacuating the pus there is less danger of exhaustion from chronic septicaemia or secondary abscesses.

Much has been written in relation to resection of the ribs when operating for empyema, and I am gratified to note that surgeons, at the present time, are taking a far more conservative view of this subject. The majority of authors, I think, are adversely disposed to the operation, except in those rare instances where the lung is confined by strong adhesions, leaving a large suppurating cavity not likely to contract and close without excision of a portion of one or two ribs.

In my own experience, resection of a rib has not been practised in children where empyemas were simple and uncomplicated, for I have found that perfect drainage could be maintained when a suitable drainage tube is selected. The ordinary soft rubber tubes used for this purpose are not sufficiently firm to overcome compression by the intervention of granulation tissue, and consequently soon become inadequate for drainage; but the corrugated white rubber tubing, which I exhibited in 1892,† has never failed to give me entire satisfaction in these cases, and appears to meet every

† Trans. of N. Y. State Association, 1892.

requirement for the purpose of effecting long continued drainage.

The indiscriminate use of antiseptic injections cannot be too strongly condemned, since many fatal results have immediately followed its practice. Immediate washing out of the pleural cavity, after operation for ordinary empyema, is always an inadvisable and hazardous procedure, only permissible at later periods when performed with greatest caution.

In the case of gangrenous cavities, however, while I believe antiseptic injections are generally indicated and are always better tolerated, the douching should always be performed with particular care. The plan by syphonage is much preferable to syringing, for reasons which will readily appear to you all. I have known metastatic abscesses, involving important large joints, follow too diligent irrigation of the pleural cavity after operation for simple empyema, seriously complicating and prolonging convalescence.

Prompt recovery after operation can alone be fulfilled by the most assidious watchfulness on the part of the attendant, as indiscretions of any sort are only liable to be followed by intercurrent complications of an unfavorable character.

It is unnecessary to allude to the advantage to be gained in respiratory gymnastics by graduated exercise after each and every removal of pleural effsion. Inhalation of compressed air, afforded by the cabinet treatment, and residence in high elevations, offer admirable opportunity for indulging in such lung exercise, and are considerations in the after treatment of these cases, of too great importance to be neglected.

COMMUNICATIONS.

THE LATEST THING IN SURGICAL FADS.

G. FRANK LYDSTON, M. D., CHICAGO, ILL.

Every now and then the medical profession has brought to its notice a new operative procedure for the relief of obstinate surgical diseases of various kinds, and long before it has been fairly tested, it often becomes more or less of a surgical craze. Let the sanction of high surgical authority be ever so lukewarm, the rank and file of the profession seem to tumble over each other in their efforts to be the first to present a series of operations involving the new procedure. The oöphorectomy craze is on the wane, but it is still worthy of attention. The adoption of a surgical fad is dangerous in proportion to its simplicity and ease of performance, and it is by no means surprising that the new operation that has been suggested for hypertrophy of the prostate should be adopted by so many men of limited surgical experience. So important is this question that I take the opportunity of repeating in this article, the points brought out in my recent letter in the *Medical News*. Castration is an operation so easy of performance, and so stubborn an affection is hypertrophy of the prostate, that the temptation to perform the operation, especially in view of the encouraging reports that have been published, is naturally great. I do not propose to quarrel with the accuracy of the experiments or the conclusions of my distinguished confrère, Dr. J. William White, of Philadelphia, who, following the lines suggested by Ramm's work, but without knowledge of the latter, a short time since gave the results of his experimentations on dogs, and made the suggestion of the possible beneficial results that might be obtained from castration in enlarged prostate in the human subject. The avidity with which certain surgeons seized upon the straw held out to them by Dr. White

was amusing. There appeared to be a desperate struggle to determine who should be the first to perform the operation or a series of operations of the kind suggested by Dr. White. Given a willing patient, castration was performed and the case rushed into print with a rapidity that was as entertaining as it was ridiculous. One gentleman, who, by the way, is one of my personal friends and for whom I entertain a high regard, reported a case illustrating the success of the operation of castration for enlargement of the prostate in something like two weeks after the performance of the operation. It is hardly necessary to comment upon this case as a specimen of claptrap clinical observation. Such clinical experiences are conducive to notoriety, it is true, but as far as their practical value as bearing upon the operation is concerned, they are absolutely worthless. A number of other cases of equally fallacious clinical reports have appeared upon the medico-literary market from time to time. The tendency seems to be to adopt the new operation as a specific for prostatic hypertrophy with a total disregard as to the proper selection and differentiation of cases.

There is a tinge of grim humor about the new surgical procedure in prostatic hypertrophy. We all remember how ye callow surgeon of every "cross roads" rolled up his records of "my first one hundred oöphorectomies" a short time since. The new woman is upon us with her "bloomers" and running us down with her bicycle. Let us have a care lest, oh, most poetic retribution! the medical new woman develop a passion for records. It may come to pass that she will advocate castration as a prophylactic, and thus menace the very foundations of society. Why not? The extirpation of the normal vermiform appendix has been gravely proposed as a prophylactic against its "it is." It is only a question of whose ox is gored.

Much stress is laid upon the results of experiments upon the lower animals, it being claimed that the removal of one testical will produce atrophy of the prostate in both animals and human beings. Excellent observers have noted apparent evidence in support of this view. Such reports, in my estimation, are to be received with a certain degree of caution. The normal prostate is by no means so easily outlined by the examining finger as some would have us believe, and a certain degree of skepticism is therefore warrantable in the consideration of cases in which the removal of one or both testicles has produced shrinkage of the normal organ. I am not going to quarrel specifically with reports of this kind, but I have had several patients under observation in which the experience of some of my colleagues is directly contradicted. I do not, however, accept my cases as conclusive, but I am perfectly willing to admit that with increased facilities for observation, the character and weight of evidence may be changed. I venture to report these cases on account of their suggestiveness.

Case 1, was that of young gentlemen, twenty-eight years of age suffering from chronic traumatic orchitis that had destroyed the function of the right testicle at the age of five years. A small hpdrocele with extremely thickened walls was present. The tumor was very large, and as the testical was evidently out of service, and extremely objectionable on account of its weight, I suggested an operation. The testicle was removed, and the patient has been seen from time to time during two years past. He had gonorrhœa shortly after the removal of the testicle, and a subsequent follicular prostatitis with epididymitis of the remaining testis. The prostate was somewhat enlarged as a consequence of the follicular inflammation. The enlargement has subsided, but the organ is still larger than normal.

Case 2, was that of a gentleman forty-five years of age, a monorchid, whom I treated for stricture and vesical inflammation. This patient has a prostate distinctly larger than the normal average.

Case 3, was that of a gentleman, fifty years of age, who consulted me regarding chroic prostatitis with considerable prostatic enlargement, which had begun some months previously. On examination of this patient I was interested to note that he had but one testicle. On inquiry he stated that the absent member was lost through an injury received in the late war.

Case 4. This man, thirty years of age, consulted me regarding a chronic prostatorrhea which he believed was incidental to masturbation in boyhood. One testicle had been lost by injury at the age of sixteen. The prostate in this case was tender and enlarged. There was a history of slight stricture which had been treated some years before.

It may be objected that these cases have no direct bearing upon the effect of castration upon the normal or senile hypertrophic prostate. It must be remembered, however, that these cases are a fair illustration of what exists in the early stages of a great many cases of enlarged prostrate. More than this, they typify the condition existing in the incipient stage of a certain proportion of cases of prostatic hypertrophy, at the time when the best effect would be expected from castration if all that is claimed for the operation is true. In the case of the cryptorchid, the objection might be raised that the testicle which was apparently absent was retained within the abdomen, and was functionating with sufficient activity to preserve the physiological integrity of the prostate. It is to be remembered, however, that in the case of cryptorchidism there is something more to be considered than the mere absence of the testes from the scrotum. Retained testes are always degenerate, and the imperfect development of the testes should certainly have an effect upon the prostate, judging by the reported results of castration. It would seem, furthermore, that a more pronounced effect would be produced upon the prostate through coincidental failure of development of that organ. I am prepared to accept the statement that castration relieves a certain proportion of cases of prostatic enlargement. I believe, however, that in the most typical forms of postratic hypertrophy, castration is not likely to accomplish any marked effect. There are cases, for example, in which much of the trouble experienced by the afflicted individual is due to a large quantity of residual urine. Shrinkage of the enlarged prostate in these cases is not likely to produce any very beneficial results, because the bladder walls have become so changed by disease that no method of treatment short of cystotomy will bring about the bladder drainage necessary to a cure or even marked relief. In those cases of prostatic hypertrophy in which distinct circumscribed fibro-adenomatous tumors exist about the neck of the bladder, it does not seem reasonable to expect much from castration. The cases in which it is most likely to be beneficial are in relatively young subjects in whom the activity of the gland and its nerve supply is still well marked. In those cases in which the prostatic enlargement is, so to speak, incipient, the overgrowth is soft and is likely to be benefited by measures of treatment less severe than castration. Chronic inflammation and hyperplasia will express as nearly as anything, the condition of the prostate in these cases. Prostatic massage, with measures to allay irritability of the deep urethra, i. e., the true vesical neck is likely to prove of great value in these cases.

One thing is certain, that in individuals with active sexual desire and normal potency, castration is by no means to be thought of. I know of no rational operation upon the bladder and prostate which is not more justifiable. Some of my overenthusiastic surgical brethren are likely to get themselves into very hot water if they do not exhibit more caution and conservatism in handling prostatic hypertrophy than seems to be the tendency in certain quarters. Within the last week I have been consulted by a gentleman, fifty years of age, who enjoys the fullest sexual vigor, and who has a moderately enlarged prostate with frequency of urination, but with little or no residual urine. Several surgeons have advised this gentleman to submit to the operation of castration. I take this opportunity of interposing a strenuous objection to such operative procedures in cases of this kind. I do not believe that castration is warrantable as long as the individual retains his virility. This restricts the operation to a very limited field, inasmuch as the testes become more ornamental than useful at a rather late period.

I recall an incident in my own practice suggestive of the truth of this statement. A gentleman, seventy years of age, consulted me for enlargement of the prostate. I incidentally mentioned the new operation for the relief of that

condition. The old gentleman amused me greatly by remarking that while "that operation might do for real old men," he would have "none of it." He expatiated sufficiently to convince me that his testes were by no means useless appendages.

Sooner or later some surgeon will get himself into serious trouble through having castrated a man for enlargement of the prostate. The patient who, in the presence of keen suffering is likely to disregard the loss of his testicles, is also quite likely to experience a sufficient amount of regret after his sufferings have been relieved, to consider the question of malpractice, and when the existence of other and more logical operations for the relief of the symptoms incidental to hypertrophy of the prostate are taken into consideration, the sympathy of the average jury is liable to result disastrously to the surgeon.

It is my opinion that the operation of castration for hypertrophy of the prostate should be advised only in men in whom the sexual function has either become abolished or so nearly so that the testes have become useless appendages. The operation is safer than operations upon the prostate, but no safer than suprapubic cystotomy, if properly performed. Indeed the danger in the two operations is almost identical inasmuch as it is the anesthetic, rather than the operation per se, that threatens life. Should it be shown, by further experience, that the operation of castration may be relied upon for relief in the larger proportion of advanced cases it will then be warrantable to perform the operation of castration as the preliminary procedure. Should the operation fail then suprapubic cystotomy is to be performed. In many of these advanced cases the indication for vesical drainage is likely to be so marked that the operation of castration will not be worthy of consideration. If the patient has to live but a sort time, and his life is menaced by inflammation and sepsis, suprapubic cystotomy, prolonged drainage and frequent irrigation would seem to be much more logical than castration.

It must be admitted that the operation of castration for hypertrophy of the prostate is still in its experimental stage, and I venture the opinion that what the procedure most needs is to be saved from its friends. Surgical "itch" and cupidity are likely to seriously cripple the future of an operation which certainly has a certain degree of promise.

As far as my own conservatism is concerned, I am ready to become radical in the application of the operation to appropriate cases as soon as sufficient evidence has been accumulated by competent observers. I certainly will not accept as competent those observers who report cases within a few weeks after the operation, when, as a matter of fact, the rest necessitated by the operation, the sedative effect of the anesthetic, and the duty incidental to the after care of the case, may be mainly responsible for the benefit of the operation. I wish to know, moreover, that the results are permanent in a large proportion of cases. At one time I firmly believed that suprapubic cystotomy would permanently cure a large proportion of cases of enlarged prostate. I found that during the prolonged drainage after an operation, the enlargement of the prostate subsided very rapidly.

With reference to the speedy resolution of the prostate claimed to result after castration, I note that I have observed a similar apparent resolution of the diseased process within one week after suprapubic cystotomy and drainage; yet, in the larger percentage of instances, I have found that suprapubic cystotomy was by no means a permanent cure in the cases of more pronounced prostatic enlargement. In younger subjects, suprapubic drainage will invariably, in my experience, bring about a subsidence of the prostatic enlargement, which in many cases will remain permanent. When circumscribed tumors exist, however, and in cases in which the prostatic enlargement is firmly organized, such a result is not to be anticipated.

In conclusion, I will reiterate my belief regarding the surgery of the prostate, that the radical operations of prostatomy and prostatectomy at an early period of the disease are not performed with sufficient frequency. If patients of middle age were given to understand distinctly that their prostatic disease is bound to grow worse instead of better, and an operation was suggested at an earlier period, we would hear less of the incurability of prostatic hypertrophy.

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PHILADELPHIA, SATURDAY, SEPTEMBER 28, 1895.

PUBLISHER'S ANNOUNCEMENT.

For some time past there has been irregularity and delay in issuing the REPORTER, and complaints have been received from subscribers of the uncertainty and annoyance to which they have been subjected in consequence. The Butler Publishing Company, therefore, take this opportunity to offer explanation and to make important announcements.

The late publishers operated the MEDICAL AND SURGICAL REOPRTER for the owners, the Butler Publishing Company, under a lease which gave the lessees full control of the journal, and placed upon them entire responsibility for its business management.

Complications in other departments of the publisher's business so involved the interests of the REPORTER that the owners were impelled to recover possession and control of the journal under a forfeiture clause of the contract.

The Butler Publishing Company, therefore, pending readjustment, has resumed full control and management of the REPORTER, and calls the attention of subscribers, correspondents, publishers, exchanges, and all having business with this periodical to the following announcements as in effect until further notice.

The notice of removal to New York, of the editorial and business offices, is recalled. The REPORTER, as heretofore, will be edited and published at Philadelphia.

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The service of the editor, who, as em-

ployed by the late publishers, was not concerned with the business management of the journal, terminated with the lapse of the contract. Dr. Kynett, however, is placed in full editorial control of the REPORTER, under the present management.

Tke REPORTER desires to express grateful appreciation of the consideration and forbearance it has met throughout the recent emergency, and trusts there will be no further occasion to trespass on the patience of its patrons.

ABSTRACTS.

REAL AND ALLEGED INJURIES OF THE SPINE.

Dr. Arthur Dean Bevan publishes the medico-legal study of a railroad accident in which two hundred and fifty-six people fell a distance of twenty feet, with special consideration of the real and alleged spinal injuries sustained.

The subject of injuries to the spine has received much attention in the last thirty years from surgeons and medico-legal experts; more, possibly than any other one medico-legal subject. It has been discussed and rediscussed by judges and lawyers, the general practitioner, the neurologist and the surgeon. In the consideration of these injuries, the terms "railway spine," "concussion of the spine" and "Erichson's disease," produce much confusion, because these synonymous terms have been used to cover many diverse conditions, such as concussion of the spine without gross lesion analogous to concussion of the brain, hemorrhage within the spinal canal, contusion and laceration of cord and membrane, and even injuries of the vertebrae and their articulations. For years the term concussion of the spine was employed to describe a jumble of actual lesions, subjective symptoms, psychoses, errors of diagnosis and attempts to defraud.

Later the term was employed to describe a peculiar disease, a secondary degeneration of the cord following concession of the spine and not accompanied with gross injury. The literature of this subject has become vast, beginning with Erichson's article which is the first systematic presentation of the subject; other important contributions are those of Page, Oppenheim, Strümpell, Thorburn, Dana, Charcot, Obsteiner, Watson, Starr.

Little light, practically nothing but negative evidence was shed on the subject by post-mortem examinations. In the lack of post-mortem evidence neurologists theorized learnedly upon the pathology and attempted to make their theories conform to the multiform symptoms presented. One wise man in order to meet all the symptoms placed the pathological changes in the sympathetic nervous system. The sympathetic is distributed to every vascular tissue in the body and the wise man's theory could be made to fit every symptom presented. But, he might as well have said that the disease was a blood disease or have fallen back on the old humeral pathology, for although his theory was safe there was not one pathological fact to support it. For a time at least the condition of railway spine with its slight trauma, its secondary degeneration and grave results was accepted as a demonstrated and frequent surgical lesion. It is unnecessary for me to mention what an important fact the recognition of this condition became in a medico-legal way and how the recognition of this disease cost millions of dollars to corporations.

Early in the discussion of railway spine, the neurologist with his theories was for the existence of such a lesion. The railroad surgeon with his clinical experience was in doubt. Then later, with further study the neurologist wav-

ered in his position and began to class most of these cases under the head of traumatic neuroses and the railway surgeon became convinced that concussion of the spine with secondary degeneration was a myth. To-day the terms concussion of the spine, Erichson's disease and railway spine spine have been dropped. The cases which were formerly classed under these heads are found to belong to two groups. First, real injuries of the spine, actual lesions of the vertebral column and contents, presenting immediate and definite signs of their existence. Second, alleged injuries which are either psychoses, abnormal cerebral conditions arising from fright, shock, slight traumas, medical suggestion, pecuniary suggestion, sympathetic care, or cases of malingering and errors of diagnosis.

My experience with this subject has been obtained from eight years of railroad work, during which time I had the surgical charge of all such cases occurring on two thousand miles of track. I began my work in 1884 with the full belief that Erichson's disease was an accepted condition and handled my work accordingly. In following out my cases, however, I found that one after another of my supposed incurable cases of concussion of the spine recovered. I began at first to doubt my ability to diagnose these cases, I then began to doubt the integrity of my patients and at last to doubt the existence of the disease itself. From a careful clinical study of more than two hundred cases I present these conclusions:

That Erichson's disease, defining such disease as an injury of the cord without definite and immediate signs of gross lesion but followed by secondary degeneration does not exist.

That the cases formerly described as "Erichson's disease" fall under four groups:

First. Actual lesions of the vertebral column and contents of spinal canal accompanied by definite and immediate signs of such lesion. Second. A psychological condition resulting from trauma and nervous shock received in an accident. Third. Cases of malingering. Fourth. Errors of diagnosis.

Experimental research, clinical experience, post-mortem examinations, the results of medico-legal cases all go to support this position.

Experimental researches frequently repeated show that if an animal is dropped a distance of twenty-five feet so as to strike on the buttocks or spine, a great variety of injuries can be produced. Fracture of the base of the skull, fracture of the spine, gross lesion of the cord, rupture of the spleen, liver, etc., but never an injury to the cord, without immediate and definite signs of gross lesion followed by secondary degeneration. Clinical experience shows us that the cases of actual lesion of the cord present definite and immediate signs of their existence, and that secondary degeneration does not follow traumas which do not at the time give definite and immediate evidence of their existence. In spite of the fact that thousands of cases of so-called Erichson's disease are on record, post-mortem examinations have never shown secondary degeneration following injuries so slight that definite signs of gross lesions were not at once evident.

Medico-legal study shows that the supposed cases of Erichson's disease recover, and as a rule rapidly, after the exciting causes of litigation etc., have been removed.

In the discussion of the four groups; Gross lesion of veptebrae and cord; traumatic psychosis; malingering and error of diagnosis, we find little difference of opinion among the authorities on these subjects in their handling of gross lesions, malingering and errors of diagnosis, because here definite evidence is at hand, but in the second group, traumatic psychosis in spite of the accumulation of evidence we still find diverging opinions.

In support of the position which I have taken, I desire to place on record some evidence which I regard as of great value. This evidence consists of a medico-legal study of a wreck, in which the conditions were practically those of an experimental research, 256 people being dropped the distance of twenty feet, striking on their feet or buttocks, the injuries which each one sustained, and the consequent history of each case being carefully recorded as well as the claims of injury and the results submitted in each case in its legal settlement.

A long passenger train containing 256 passengers, trainmen and tramps, was crossing a trestle twenty feet high and a half mile long, at a speed of twenty miles an hour. Suddenly the engineer blew the whistles and put on the brakes. For some reasons unknown the engine plunged through the trestle. The trestle under the train collapsed like a pack of cards letting the entire train fall twenty feet. All of the cars except the mail and express remained in their proper position and relation to each other. It was three hours before a relief train reached the wreck. The wreck was then systematically handled, the extent and character of the injuries in each case noted, temporary treatment and dressings employed. The injured were then taken, part of them to a city hospital and part to a country hotel. As chief surgeon of the road I controlled the surgical management and was consulted in the medico-legal conduct of each case. The report, therefore, which I submit, is based upon my own study of these cases covering a period of four years, within which time all the claims were settled.

Of the 256 people in the train at the time of the accident, 123 were injured; of these four were killed outright and two subsequently died. The wreck occurred at night in a sparsely settled country and help had to be brought from forty-five miles away. All of the people were thoroughly and completely demoralized when the relief train arrived. It was necessary to carry forty of them on stretchers to the relief train. It was fifteen hours after the accident before they were all comfortably provided for. I mention these facts to show that conditions capable of producing fright and great nervous shock were present. In analyzing the nature of the injuries we found that four people had been killed by crushing injuries and that twenty-two people sustained fractures, six of which were compound. There was one dislocation; there were eight incised and lacerated wounds; eighteen sprains of ankles, knees, wrists and elbows; six with no external evidence of injury, all cases of nervous shock. Fifty-eight cases of contused in-
s; two injuries of the eye; one in-
injury; one hernia; one abortion;
one injury to vertebra column and cord.

Many of these cases made indefinite claim of having railroad spine, but the claim was made seriously in thirty-five cases and susported by medical testimony in twenty-four cases. Eight of these cases were settled in court, the balance outside of court. I shall read a list of the cases and give figures of settlement.

In the settlement of these cases many frauds were detected in the effort to palm off an old injury or lesion as recent and produced by the accident, such as hernia, bunion, curvature of the spine, blindness in one eye the result of thrombus of the central artery of retina, displacement of the uterus, gray hair which was dyed at the time of the accident and got suddenly white after it, etc.

One instructive fact in connection with the accident was the ease with which the plaintiffs could obtain partisan testimony from interested and ignorant physicians.

There were 123 injured people. There were twenty-four serious claims of railroad spine backed up by medical testimony and many more in which the claim was advanced when the individuals made their settlement with the company.

The history of the one single case of actual lesion of the cord is as follows:

Man, age forty-two years, gross injury to vertebral column and cord. Settlement F. Death two years later from lithotomy. The patient's right lower limb, bowels and bladder completely paralyzed after injury. The left limb retained some motion and sensation. Could not at first discover any deformity in the vertebral column although there was evidently a gross lesion. Two weeks later a prominence appeared in the lower dorsal region, due to the thickening produced by the process of repair and located distinctly the point of injury. Patient's general condition improved, but paralysis of limb, bowels and bladder remained. A stone found in bladder and patient died from operation performed for its removal two years after injury.

The interest of this wreck centers on the twenty-four alleged cases of railroad spine backed up by medical testimony.

Some of them were clearly cases of malingering; some were examples of traumatic psychosis. These cases have all been settled; they have all recovered. The more interesting I shall analyze in detail. One point I would like to make clear in regard to these twenty-four cases and that is that part of them were in my immediate charge and part in the immediate charge of outside physicians, although under my supervision for a time at least. All of the cases in my immediate charge were perfectly and completely well in four weeks; the cases that did not recover as soon as their scare was over were without exception in the hands of men who regarded them as cases of railroad spine; that the condition of the patient was serious and critical and so informed them.

Their physicians were more responsible for the condition of the patient than was the accident.

I am positive that had I had each one of these cases in a private room at my hospital and if the item of compensation had been arranged in each case that in none of them would there have been a trace of the nerve shock at the end of a few weeks; that they would all of them have recovered their normal equilibrium at the end of that time. In no class of cases can the intelligent physician be of as much service and in no class of cases can the ignorant physician, the partisan physician, the partisan neurologist or partisan medico-legal expert be of as much injury as in cases of traumatic psychosis.

I shall present a brief sketch of the twenty-four alleged injuries of the spine.

1. Injury to back, no evidence of external injury. Claims paralysis of right upper extremity and that her hair changed suddenly within a few weeks, white, after the injury. Claims severe nervous exhaustion and that she is permanently disabled. Settled D. Recovery.

No question but that it was a mixture of nerve shock and malingering. Her hair had been dyed or bleached a reddish brown before accident and she had allowed it to resume its natural color.

2. No evidence of external injury, made claim of railroad spine, remained in room, used crutches, said one lower limb was paralyzed and had great pain in back, whenever any agent of company was about used crutches and dragged limb. A detective took him out in buggy two miles from town to look at some farm land and left him so that he had to walk home, which he did naturally without the aid of crutches until he came to the outskirts of town. Settled B. Within a short time was teaching school and entirely recovered.

3. Rib broken, claimed railroad spine, remained an invalid until settled C then recovered entirely.

4. Bruised leg, claimed railroad spine, claimed paralysis and permanent injury, remained an invalid until settlement C then recovered rapidly and returned to work.

5. Ribs broken, claimed railroad spine and permanent injury, remained an invalid and sued the company for twenty thousand dollars. Morning before suit, case settled for E recovered and returned at once to business.

6. No evidence of injury, claimed spinal concussion and permanent injury, was suffering from rheumatism at time of accident and was in search of a favorable climate to live in. Used crutches. Case settled D. Recovered the day he had check, and traded his crutches at the drug store for toilet articles and left town perfectly well. Settlement was made in this case largely to get rid of him as he was putting up all the injured to claim railroad spine.

7. No evidence of external injury except bruise on chest. Was tubercular. Great nervous shock, claimed permanent nervous injury, three months later stated she had not slept and was unable to work and had had hemorrhages from lungs due to injury. Settlement made C. Improved, returned shortly to her work and died two years later of consumption.

8 and 9. No evidence of external injury, claimed the night of wreck that they were both permanently injured in spine and would make the railway company suffer. Went home, pretended to be in bed and invalids for seven weeks with the most exaggerated symptoms of spinal trouble. Settled for C each. Same week left for short trip and returned entirely recovered.

10. Commercial traveler. No evidence

of external injury, great fright. Typical traumatic hysteria, was under my immediate care, complained of frightful pains in back and inability to move lower limbs. At end of week I picked him up in my arms and put him on his feet, told him he was a fool and that he was simply frightened and not hurt. He began to cry like a child. I held him on his feet and in ten minutes convinced him that he could walk. He left the hospital at the end of three weeks, settlement made C. After he left hospital went to San Francisco, consulted several physicians. One told him that he had railroad spine, he was badly frightened, consulted another physician who recognized the conditions, encouraged him and he at once resumed his work. I have seen him repeatedly, he is most grateful to me for the way I handled him, although he thought it rough at the time. As he expresses it, he was in such a condition that if he had been told that he had serious spinal injury he is convinced that he would have become a chronic invalid.

11. Sprained ankle. Claimed railroad spine and permanent injury, played the part of invalid, claimed loss of power in injured limb; settlement C. Recovered and returned to work after drinking up the money.

12. Sprained ankle, claimed spinal injury, inability to use limb and permanent injury; settlement C. Recovered and returned to work.

13. Contusion of chest. Claimed fracture of sternum and spinal injury. Was editor of paper. Stated he had lost his memory; great general weakness, inability to work; loss of eyesight; permanent nervous injury. Remained an invalid until settlement was made, settlement of D. Recovered within a few weeks and returned to his work.

14. Lacerated wound of nose and forehead. Claimed on stand that there had been fracture of skull and spinal concussion. Claimed impairment of vision, loss of memory and permanent injury. Jury gave plaintiff C. Money paid, case recovered at once and resumed work.

15. Contusion and laceration of the face and shoulder. Claimed spinal injury and permanent invalidism. Jury gave D. Case settled and man recovered and resumed work.

16. Old lady. Great nervous shock and stiffness and soreness after accident. No external injury. Claimed fracture of the spine and cited as evidence in court, old curvature; claimed spinal injury and permanent invalidism. Jury gave C. Case settled and recovery followed within a few weeks.

17. Girl of twenty. Nervous shock; no evidence of injury. Claimed spinal injury and permanent invalidism; remained in bed and never left home until settlement was made for C. Then recovered at once and left town.

18 and 19. Man and woman. No external sign of injury in either case. Both claimed spinal injury and permanent disability from the very night of wreck. Woman very hysterical. Man, a man of more than ordinary intelligence. Wanted $30,000 apiece. Became chronic invalids, all the symptoms of Erichson's spine present in an exaggerated degree. Woman claimed a gross injury of the vertebral column and presented as evidence a prominent but normal spinous process of lumbar vertebræ. Wore plaster jacket for some weeks; put it on about two months after the injury. Man took chloral and morphine, and impaired his general health; looked like a wreck. They kept up this condition of things for a year and a half. They accumulated a vast amount of medical evidence as to their conditions, some from neurologists and some from general practitioners. About a year and a half after the wreck their claims were settled for E. Before this neither of them had done any work. After the settlement they at once resumed work.

These were cases of artificial and induced invalidism. The people were intelligent and refined, and apparently honest. They were cases which believers in concussion of the spine would have pronounced as typical and yet there can be no question but that it was within the power of an intelligent attending physician, and in the power of the patients themselves to have had them entirely well within ten days after the accident.

20. Great nervous shock, no evidence of external injury. Claimed at first an-

tiflexion of uterus. The matter was submitted to me and I informed her lawyers that the claim was absurd and asked them to submit it to three gynecologists. This was done and the three gynecologists evidently agreed with me, for a new claim was substituted, that of concussion of the spine. In the trial she developed the well-known symptoms, had abundance of medical testimony to support her claim and received a verdict of F. The case was compromised and she resumed her every day habits of life and recovered entirely, although she claims she has never been quite the same.

21. No evidence of external injury, felt sore and stiff next day after traveling 200 miles from wreck. When he arrived at home called in his family physician, who told him he had Erichson's disease and that he must remain in bed for five or six weeks and keep perfectly quiet. The physician put him to bed, gave him large doses of bromide and made applications of some sort to vertebral column. The man was ignorant and had lost what money he had at about the time of the accident. The confinement in bed and medicine affected his general health, he lost strength and weight. At end of three months I saw the case. He stated that his mind was affected, that his lower limbs were paralyzed, etc., etc. I lifted him out of bed and led him around the room and informed him that he must get up and take exercise, that he had no injury and that if he chose he could be entirely well in a month. He looked at me and said, "My doctor says that I am permanently injured, you say I am not hurt at all. Whom shall I believe?"

Within six months of time of accident the case came to trial. The trial was hastened by his lawyers who thought the man would die before its completion. The man was brought in on a stretcher. Various tests had been applied, the dynamometer, esthesiometer, electricity, etc., and evidence was submitted to prove that he was permanently disabled and was suffering from injury of the spinal cord. He received a verdict of F. This was paid. He went to Germany, remained a short time, returned and went to work.

A little incident in this case is of interest. Last summer a relative of his committed suicide and at the coroner's jury it was shown that my former patient was chopping cord wood at the time of the suicide.

22. Sprain of ankle. Nervous shock. Later, claimed gross injury of vertebral column with spinal concussion and permanent invalidism. Submitted as evidence of gross lesion of vertebra, a prominent and irregular but normal spinous process in lower dorsal region. Later the claim was made that she had beginning Pott's disease, resulting from accident. She wore plaster jacket for some time. Later the claim was made that she had sustained great injury to her internal genitals, had ceased to menstruate; this was shown later to be due to pregnancy. A settlement was made C. She went on to term, gave birth to her child and recovered entirely.

22. Sprained elbow. Later claimed permanent nervous injury; claim settled, C, and recovery followed.

24. Contusion of face about the eye. Claimed gross cord and brain injury and loss of eyesight from accident. Had heart lesion. The eye was examined a short time after accident by a competent oculist who stated that the loss of sight was due to a lesion of old standing, probably thrombus or embolus of central artery of retina. Man had valvular heart trouble. Settlement was made D; recovery as far as general condition was concerned.

Many of the other cases talked more or less about their having sustained injury of the spine, but I submit these twenty-four cases because in each one there was medical evidence to support the patient's position. I mean that in each case physicians had given the opinion that the individual was suffering from spinal concussion and that they were permanently injured.

To summarize the study of this wreck.

1. The conditions of the wreck were most favorable for the production of alleged railroad spine. Out of 256 people, 123 were injured; six people were killed or died as direct result of their injuries. Among the many injuries sustained there was but one actual lesion of spinal cord and this was at once recognized.

There were twenty-four claims of con-

cussion of spine, presenting the usual subjective symptoms. Each one of these cases was regarded by regular practitioners and some alleged experts as cases of permanent injury of spinal cord, yet these cases all recoved entirely, none of them, however, until settlement had been made.

I would submit for your discussion, conclusion arrived at, not from a study of the literature of the subject, but from the clinical and medico-legal study of 200 casses occurring in my own practice, conclusions which agree perfectly with the results of the wreck which I have described in detail and which, from the conditions I regard somewhat in the light as an experimental study of the subject.

1. Real injuries of the spinal cord present positive and immediate symptoms.

2. Alleged injuries of the spinal cord without positive and immediate evidence of gross lesion are either cases of malingering or abnormal cerebral conditions, psychoses or a mixture of the two.

3. That these psychoses are the results of two factors: a. A brain readily affected by suggestions. b. Suggestions furnished by an accident with or without injury to the individual, suggestions furnished by the hope of pecuniary gain, suggestions furnished by sympathetic care, and lastly, of greatest importance, suggestions furnished by medical attendants.

4. To establish a diagnosis requires the immediate and sometimes protracted observation of the patient as in the study of any psychosis.

The supposed refined means of diagnosis as the dynamometer, esthesiometer, electricity, etc., etc., are seldom of value and are often of positive harm as suggestions to the patient.

5. These cases all recover when the exciting causes are removed, rapidly under proper surroundings and advice. Recovery may be indefinitely prolonged by improper surroundings and improper advice.

6. These psychoses will not receive their proper medico-legal position until the medical profession has been generally educated in the subject and until legal means are provided for the punishment of maligners and their alleged medical experts.

NOTE—In the figures for settlement

The letter	A	means	less	than	.....	$		100
"	"	B	"	"	"	.....		1,000
"	"	C	"	between	..	$ 1,000	and	2,500
"	"	D	"	"	...	2,500	"	5,000
"	"	E	"	"	....	5,000	"	10,000
"	"	F	"	"	...	10,000	"	20,000

Chloro-Caffeine.

Pickering (*Jour. of Phys.*, vol. xvii, No. 6) relates experiments made with the view of studying the connection between the chemical constitution and the physiological action of the stimulus employed. Xanthine increases the force and the frequency of the embryo chick's heart and the frequency of the frog's heart but does not produce any tonic contraction. Theobromine, which is dimethyl-xanthine, has a greater influence in increasing the force and frequency of the chick's heart and in large doses produces slight tonic contraction. Caffeine, which is tri-methyl-xanthine, produces marked tonic contraction. In the experiments chloro-caffeine was used, in which an atom of chlorine is introduced into the caffeine molecule without displacement of the methyl radicals. The methyl groups would tend to induce tonic contraction of the heart muscle, the chlorine an atonic condition. The introduction of the chlorine atom was found to modify considerably the physiological action of caffeine. Chloral-caffeine produces far less tonic contraction of the heart than caffeine, so that it presents, apparently, an example of "physiological antagonism" going on in the interaction of the parts of one kind of molecule and living contractile tissue—in these experiments the myo-plasm of the embryonic heart. A solution of caffeine in chlorine water acts differently, the free chlorine being very toxic to the heart. The possibility of the chloro-caffeine being decomposed in the living tissue into caffeine and chlorine was considered but no evidence of such an occurrence could be discovered. Chloro-caffeine is a powerful diuretic and also apparently a cerebral stimulant. Experiments were made also with cyano-caffein, but this was found to act more like a cyanogen derivative than a caffeine derivative, the cyanogen molecule overpowering the three methyl groups.

TAKA DIASTASE.

Ferdinand Lascar, Ph.Gr., (*The Therapeutic Gazette*, July 15, 1895), writes:

In the human system a continued waste takes place which it is necessary to provide for, and to this end man partakes of food which must contain the elements for this purpose. To bring such food products into proper form, so that they can be assimilated and taken up in the system, the digestive organs perform their functions, and these are of a mechanical and chemical order. The food needed is both animal and vegetable in nature, the latter forming by far the greater and more important part. It can truly be said that upon the proper digestion of his food, man's health, happiness, and very life depend, and progressive science has fully demonstrated the unerring truth of this. Any irregularity or fault in the process of digestion very soon becomes manifest, and dyspepsia, malnutrition, and ill health follow. As the food man partakes of is twofold, so is the process of digestion a twofold one, animal and nitrogenous foods needing an acid, while vegetable, starchy foods need an alkaline process to bring them into a soluble form ready for assimilation. The general idea about faulty digestion is that the stomach performs its duties improperly. While this, in very many instances, is undoubtedly so, the fact is, nevertheless, that in the greater number of cases of impaired digestion improperly performed processes of other organs are at the bottom of the evil in failing to properly convert the starchy food partaken of.

The changing of amylaceous food into dextrose and maltose is the beginning of digestion. All will have observed that bread, crackers, or potatoes, not being sweet in themselves, very soon become so when masticated and thoroughly mixed with the saliva in the mouth, and that their taste becomes sweeter the longer this is continued. This sweet taste is due to the conversion of the hydrated starch by the action of the saliva upon it, the saliva containing an enzyme called ptyalin, which, by its presence, splits up the starch into soluble products which I will mention later on, and this splitting-up process of the starchy food even continues after it has left the stomach. Animal foods needing the acids which are found in the stomach are digested there, but acids materially interfere with the action of enzymes which cause the conversion of starch, even destroying such action altogether. For this reason it seems practically incorrect to say that the conversion of starch continues after it leaves the mouth; but nature has provided against a too soon interference of acid, because it is now well understood that acid especially hydrochloric acid, is secreted in the stomach a considerable time after the food has arrived there, and this may be one of the reasons why the converting of starch continues after it has left the mouth.

Since medical science has thoroughly grasped the philosophy of digestion, it has been the aim by artificial means to supply the enzymes which digestion calls for when they do not appear to be present in a sufficient quantity or are secreted in less potent form by the digestive organs. Science has succeeded fairly well in supplying gastric and pancreatic ferments when nature lags behind; but our success has so far been only a very partial one in supplying starch-converting substances, and for this reason a new and seemingly valuable discovery in this direction at once becomes interesting.

That diastase has an identical action with ptyalin upon starch is a fact long known, and for this reason the diastase contained in malt has been employed for this purpose. Diastase is contained to a lesser or greater extent in the different extracts of malt, and in minute quantities also in fermented malt preparations. In the latter the diastatic action, however, is generally totally destroyed by the acids present. Even in the best extract of malt there is only a limited and variable amount of diastase present; and while the extract of malt will continue to play an important rôle as a dietetic agent, its utility as a starch-converting agent will always remain a

limited one. From time to time pure diastase has been offered to the profession, but none has so far proved of a sufficient potency to recommend itself to general use. Great progress in this direction is the discovery of Mr. Takamine, a chemist of no mean ability, who acted as one of the commissioners of Japan at the Cotton Exhibition in New Orleans several years ago. At that time he showed me an extract of malt, as manufactured in Japan, very rich in diastase and nutritive properties, and which I have mentioned in a paper on the diastatic and nutritive properties of malt extracts, published in the December number, 1891, of the *Epitome of Medicine*. In that paper I warned against too great heat in the manufacture of malt extracts, as heat impairs, and is even liable to totally destroy, the diastatic action. The avoiding of all undue heat in preparing diastase may be one of the reasons why the diastase which is now manufactured by Parke, Davis & Co., under Mr. Takamine's discoveries, is so perfect in its action in converting starch into maltose and dextrose. His product is a dry powder similar in appearance to some I received from a reputable German firm years ago, but is vastly superior in potency. Since the receipt of this German preparation I have frequently had occasion to experiment with various diastases, some being named vegetable ptyalin, but in no instance have they come up to the desired standard, and failed to fill the void felt for an enzyme which will accomplish what the enzyme of saliva in a healthy individual does accomplish.

In comparing notes of experiments lately conducted with taka diastase, other available diastases, and different extracts of malt, I find that the claim of the taka diastase that it will convert a hundred times its own weight of starch into a soluble state is well authenticated, for I have succeded in converting even fifty per cent. more of starch than is claimed for it. Another point in favor of taka diastase above other similar products is the quickness of its action upon starch, for the action is almost instantaneous. To convert one hundred parts of starch into a soluble state by the action of one part of taka diastase, under proper conditions, it takes only four minutes until neither iodine test nor the microscope can detect unconverted starch. The product of converted starch with Mr. Takamine's taka diastase is to a great extent maltose. Compared with the time required by the best extract of malt to convert starch, this is certainly an excellent showing, for it took the best malt extract between seven and eight minutes to convert its own weight of starch into a soluble state, while with some other extracts of malt it took fifteen, twenty, and thirty minutes to partially accomplish this end. Tests with Fehling's solution to ascertain in the converted starch products the amount of contained sugar therein were equally favorable to taka diastase.

In converting starch into a soluble state by the action of diastase, the rearranging of the molecules of starch is understood to be as follows:

Starch ($C_{12}H_{20}O_{10}$) 10 plus water, H_2O, are first formed into erythro dextrose and maltose.

$$(C_{12}H_{20}O_{10})_9 \text{ and } C_{12}H_{22}O_{11}$$

By the continued action of diastase further hydration of the erythro-dextrose takes place.

The erythro-dextrose further splits up into erythro-dextrous-*B* and maltose, the ultimate result being a small amount of dextrin (anchro-dextrose) and eight or nine equivalents of maltose. Since Leuch's discovery of the specific starch-converting property of saliva and its ptyaline, we have lacked an agent of sufficient potency to accomplish what good healthy saliva does, and, for the first time, we find in taka diastase a substitute of undoubted worth, which even in the presence of a minute quantity of acid, does not cease to be potent. The ptyaline in saliva is present there in a neutral or weak alkaline state, and for this reason it suggests itself that diastase, being an analogue with the former, acts also at its best in such a state, and is incompatible with acids. I employed in the greater number of my experiments with diastase carefully washed arrow-root,—a perfectly bland and neutral starch; but I found that starches giving a slight acid reaction on blue litmus were equally well converted by taka diastase. In testing diastase as

to its potency, I would recommend that the iodine as well as the copper tests be employed, and that undue employment of heat under all circumstances should be guarded against, as heat, as already mentioned, destroys the action of diastase.

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in almost every tissue in the body, and especially in the stomach, liver, lungs, heart and kidneys, as may be seen illustrated in every case of chronic alcoholism. It is this effect of alcohol in diminishing the internal distribution of oxygen and also the activity of the nuclein and leucocytes of the blood, that makes the individual using it more liable to attacks of almost every variety of acute disease, whether epidemic or endemic, and lessens his vital resistance when attacked. So true is this, that every modern writer of note on practical medicine tells us that even habitual *moderate* drinkers of alcoholic liquor give a much higher ratio of mortality when attacked with cholera, continued fever, pneumonia, influenza, or almost any other acute disease, than the total abstainers. Even the more intelligent part of the non-professional public have come to quite generally recognize this inherent and inevitable power of alcohol to impair man's physical power and activity, and hence they prohibit its use in all circumstances requiring the highest degree of activity and endurance, whether mental or physical.

HEREDITY IN INEBRIETY.*

The problem of heredity—the transmission of parental and ancestral characters to each new generation of organic beings—is one of transcendent interest in biology at the present time, not only because it seems to hold the key to a large part of evolution, but on account of its relations to many social, moral, and even political and religious questions. The laws of heredity, whatever they may ultimately prove to be, must necessarily govern the transmission of inebriety, and the facts of inebriety must occupy a place in the body of phenomena, by induction from which those laws will be formulated.

We know that every individual, even the most complex, takes its rise from the division and subdivision of a single cell or its nucleus, constituting the essential part of a bud or a fertilized ovum, in which latter case the nucleus itself results from the union or conjugation of a male and a female pronucleus, derived respectively from each parent. But how is it that this extremely minute particle of matter can convey to the new being, into which it is destined to develop, the precise configuration of the parent form, nay, the very peculiarities, temperaments, and predispositions, not only of an individual, but of a family or breed?

The older and still popular idea was that the reproductive elements were, in a vague way, a sort of quintessential distillation of the parent body. Related to this, but elaborated to a high degree, and based in the true scientific spirit on the widest induction from masses of facts relative to reproduction in its various forms, development, reversion, and inheritance, both of ancestral and acquired characters, is Darwin's confessedly provisional hypothesis of "Pangenesis." Pangenesis "implies that the whole organization, in the sense of every separate atom or unit, reproduces itself. Hence ovules and pollen grains —the fertilized seed or egg, as well as buds—include and consist of a multitude of germs thrown off from each separate atom of the organization." "That all organic units, besides having the power, as is generally admitted, of growing by self-division, throw off free and minute atoms of their contents, that is, gemmules. These multiply and aggregate themselves into buds and the sexual elements, their development depends on their union with other nascent cells or units, and they are capable of transmission in a dormant state to successive generations."

Wholly different in its fundamental conception, and sharply contrasted with this, is Weismann's theory of the "Continuity of the Germ Plasm," so called, which teaches that "the germ cells are not derived at all, as far as their essential and characteristic substance is concerned, from the body of the parent, but directly from the parent germ-cell, from which the individual has also arisen; so that heredity is brought about by the transference from one generation to another of a substance with a definite chemical and, above all, molecular constitution," and, "from this identical starting point an identical product necessarily arises." To bring out his meaning rather more clearly: "In each onto-

* Thomas Morton, M. D., M. R. C. S., before the English Society for the Study of Inebriety at London, 1894.

geny (or generation of a new individual) a part of the specific germ plasm contained in the parent egg-cell is not used up in the construction of the body of the offspring, but is reserved unchanged for the formation of the germ cells of the following generation." It is interesting to compare this with the words of Francis Galton, who, in 1872, anticipated Weismann by saying that "each individual may properly be conceived as consisting of two parts, one of which is latent and only known to us by its effects on his posterity, while the other is patent and constitutes the person manifest to our senses." This idea of the *soma* or body as, so to speak, a sort of appanage of the germ plasm, runs through all Weismann's work, and he even, in metaphor, compares the germ plasm to a creeping underground root stock which throws up leaf shoots at intervals.

It is obvious that, on such a conception as this, the latent qualities of the germ plasm must entirely control and dominate the sensible characters of the body which expresses them, but can have little or no reciprocal influence on the germ plasm.

Weismann and his school almost wholly disbelieve in, and take great pains to dispute, the hitherto received idea of the transmissibility of acquired characters, which Darwin and most English biologists have assumed to play a considerable, though subordinate, part in the process of evolution. And, with reference to this question, he draws a distinction, which is certainly valuable and tends to clearness, between characters acquired, or supposed to be acquired in the ordinary sense, by the effects of the use or disuse of organs, by habits of life, or the reaction of the organism under the various influences of the environment, and those which are acquired in the course of evolution by spontaneous variations controlled by natural or artificial selection. These latter are really potentially present in, and depend upon, molecular changes in the germ plasm, before they make their appearance in the *soma* or body, and he proposes to call them *blastogenic* in contradistinction to the former, which he terms *somatogenic*.

It is at once evident that an inebriate tendency arising from the intemperance of a parent, must fall under the *somatogenic* category, and consequently be disallowed by Weismann and his school. So that if his theories are to be accepted in their entirety we must say good-bye to a belief in inebriate inheritance as ordinarily understood.

But are they to be accepted in their entirety? When I spoke of the theory of the Continuity of the Germ Plasm as holding the field, I did not, of course, mean to imply that it might now be regarded as established, but merely that it occupies such a position that round it the battle chiefly rages, and upon its proof or disproof the issue of the controversy must mainly turn.

It has the support of great English authorities, among whom I may name Alfred Russell Wallace and Ray Lancaster, but it is incompatible with the teaching of Herbert Spencer, who attaches the greatest importance to the influence of the environment, not only on the individual but on the race. It traverses that of Darwin, who, down to a late period of his life, admitted that "a great value must be given to the inherited effects of use and disuse, some also to the modifications in the direct and prolonged action of changed conditions of life." Prof. Vines has published a searching criticism of Weismann's views. Prof. Turner describes himself as "unable to accept the proposition that *somatogenic* characters are not transmitted," and adds, "I cannot but think that they form an important factor in the production of hereditary characters." Even Francis Galton, who anticipated the theory, makes a similar admission; though he says, "the effects of use and disuse of limbs and those of habit are transmitted to posterity in only a very slight degree."

Here is the weak point in Weismann's teaching, and he will not succeed in making good the absolute seclusion of the germ plasm from all somatic influences, upon which he insists with the warmth of a partisan and with excessive ingenuity. His teaching is probably in the main true. At any rate it has to be reckoned with by those who wish to retain that most powerful argument for abstinence which is based upon the assumed transmission of the physical re-

sults of intemperance to generations yet unborn.

How, then, do we stand who not only wish but are convinced from what we have ourselves seen of inebriety, that there is truth in the assumption on which the argument is based.

It seems to me that the time has come for considering the assumptions on this subject which pass current among us, defining them more carefully, and attempting a positive demonstration of so much of them as can be proved. And this not only in the interests of truth and for our own satisfaction and encouragement in our warfare with drink, but in order to compel the attention of that enormous public, of all grades of intelligence, who will not take the trouble to listen to or understand us, and who more or less consciously justify themselves by regarding us as prejudiced enthusiasts. If what we have believed and taught on this particular subject cannot be maintained in all its fullness, we ought to know it and modify our teaching accordingly. If it can, the biologists ought to know it, and it is sure of a hearing, as it bears directly upon the vexed question of the transmission of acquired characters.

My object is not to attempt any such demonstration, but after pointing out the importance of its being given at the present juncture in the course of scientific thought and of temperance advocacy, to indicate the chief difficulties which beset the task and the lines upon which it should be attempted.

1. In existing statistics on the subject it does not seem to be sufficiently recognized that it is one thing to establish the fact that the children of intemperate parents are apt to be afflicted with degeneracy and various neuroses, and another to prove that they inherit a special proneness to inebriety. The class of observations available for the latter purpose is much narrower and more difficult to verify than for the former. Both are available for temperance advocacy, but the latter is what the scientific world wants and will listen to.

2. It is not sufficient to show that a large number of degenerates and inebriates have intemperate parents, or, conversely, that intemperate parents produce a large number of degenerates and inebriates, without knowing, as a standard of comparison, what proportion of the general public have intemperate parents, or, conversely, what proportion of degenerates or inebriates average parents produce. The late Professor Demme, of Stuttgart, evidently recognized this, and based upon it some excellent work in the comparison of the direct descendants of ten families of drunkards, and ten with temperate parents. The results were very striking as to degeneracy, but less so as to inebriety.

3. It must be remembered that mere degeneracy or insane neurosis involving defective control, not necessarily depending on alcoholic abuse in the parents may show itself in the form of alcoholic excess if circumstances favor that particular form of excess instead of some other. Many typical inebriates have an insane parentage, and such cases go to prove inebriety to be a neurosis, but do not prove the transmissibility of an acquired taste for alcohol.

4. It seems to have been taken for granted that, when the link of parentage exists between two inebriates, the link of heredity may safely be assumed; but we know well that drinking habits will of themselves establish a condition of inebriety in a person of sober parentage, and the children of drunkards are more likely than others to acquire an inebriate constitution in this way, from early familiarity with alcohol. This is an objection peculiarly difficult to meet, even in those strong cases where two or three brothers or sisters are similarly affected; as the only cases which would afford a standard of comparison would be those of the children of temperate parents brought up by intemperate relatives. A somewhat similar objection might be urged as regards degeneracy. The mortality among the children of drunkards is known to be enormous, from the poverty, disorder, and misery in which they are commonly brought up, and many of those who survive may naturally be expected to be puny and feeble in body and mind, independently of any congenital defects they may bring into the world with them.

So much for the objections which fairly lie against assuming as a matter of course that acquired inebriety may be

transmitted to descendants. If they are to be fairly met it will be necessary to sift and rearrange the data which we already possess, with constant reference both to some such standards of comparison as I have suggested, and to the distinction between general degeneracy and the special inebriate condition. And they should be supplemented by further observations upon Demme's excellent plan.

After all, the proof of such a proposition must necessarily be of a cumulative kind, and rest upon the convergence of several lines of argument, neither of which is absolutely conclusive in itself. And there is one special set of cases which afford perhaps the strongest argument of any. I mean those of remarkably precocious inebriety, if, as I believe, they are never met with except in the families of intemperate persons. Observations on this point are much needed and would be of great value.

Let us now, quitting fact for theory, turn again to the biological aspect of the question, and, admitting almost completely Weismann's contention that the characters impressed on the germ are, so to speak, antecedent to and independent of those which its bearer's life history may impress on his or her *soma*, and that there does not exist any mechanism by which these latter can be impressed upon or registered in the germ, let us enquire whether there does not nevertheless exist a mode in which the bearer's drinking habits may, and indeed must, affect it or the being into which it is destined to develop. "The blood is the life," and even the exclusive and independent germ plasm must share in the life of its bearer so far as to be nourished and kept alive by the same blood stream. If this blood stream is constantly poisoned at its source by a large infusion of a soluble substance inimical to healthy cell life, and especially to that which is youngest and that which is most complex, should we not confidently expect the tremendous but exquisitely delicate potentialities of the germ cell to suffer some disorder? If this be admitted of the quiescent unimpregnated germ, which has simply to maintain and multiply its life like some unicellular organism, what shall we say of the impregnated germ, which has entered upon its career of development, and is drawing to itself large and hourly increasing supplies of nourishment, for many months, out of the maternal blood, which *ex hypothesi* contains alcohol in pathological percentage.

Do we not have here an ample and abundant explanation of the greater potency of inheritance through the mother, which seems to be acknowledged by all observers of alcoholic degeneracy, and which ought to be kept clearly in view in the future collection of statistics?

And we may even go further, and see with the minds eye the genesis, not only of degeneracy, but of inebriety. We know that one of the characteristic properties of alcohol is to establish a tolerance of itself in tissues where its presence was at first resented as a disturber, and before long to become apparently so indispensable to their smooth working that its temporary absence is felt to be intolerable. Where alcohol is a constant constituent of the nutrive fluid, it is easily conceivable that the nine months of intra-uterine life may suffice to establish in the tissues of the embryo such a tolerance of alcohol, or intolerance of its absence, as may be readily revived again from time to time during childhood, by the taking of alcohol, and finally re-establish in later life. The tissues seem to have a sort of memory of their own, in virtue of which they, as it were, recognize and respond to familiar stimuli when again brought into their presence after an interval.

I am painfully conscious that I occupy to-day the unpopular position of *advocatus diaboli*. But, as the result of that functionary's labors is usually to establish more firmly and indisputably the sanctity of the person whose claims to canonization he opposes, so I trust that my criticisms will lead in the end to the clearing up of all doubt and confusion on the subject of hereditary inebriety, and to the placing of it beyond all cavil or question.

RATIONAL THERAPY OF ALCOHOLISM.*

The author divided his subject into acute, subacute, chronic and periodic alcoholism.

Acute poisoning with alcohol mani-

* F. W. Antoninus Fabricius, M. D., (*Medical News*, May 4, 1895.)

fests itself in one of two forms. One, the anæmic variety, is usually produced by the sudden admission of large amounts of raw spirits into the stomach, a dangerous and possibly fatal condition of shock resulting therefrom. The countenance is pale, the pupils dilated, the pulse feeble, rapid and irregular. In such cases, immediate assistance to the heart is required to prevent fatal syncope, and before attempting to empty the stomach a hypodermic injection of nitro-glycerine with atropin, or of sal volatile, should be administered. The stomach tube is then passed and the viscus emptied thoroughly and washed out, a little warm milk, olive oil and chloride of sodium being left within it as a local sedative and mild laxative. This is to be followed by a hot pack if the temperature is subnormal, and by hypodermic injections of strychnine or nitro-glycerine if necessary. As the patient recovers he is very likely to fall into a deep sleep, from which he should not be aroused.

In the second or congestive type of acute alcoholism the onset is far slower, and the patient is suffering from an alcoholic toxæmia rather than from shock, although the temperature may be subnormal and the pulse feeble. Narcosis is rarely so profound that stimulation, as by a sharp rap on the soles of the feet, is not followed by response. In these cases the stomach should first be washed out and a good dose of Epsom or Rochelle salts left within it. The action of the bowels and of the skin should be established as quickly as possible—the former, if necessary, by enemata superadded to the salts already mentioned; the latter by the use of the hot pack and free massage. Convulsions are occasionally seen in this stage, resulting probably from a passive hyperæmia of the cortex, and should be treated by a hypodermic injection of morphia with chloral and bromide by the rectum, and possibly croton oil by the mouth, to induce rapid and vigorous purgation.

Subacute alcoholism means a condition when the drinking habit has become so established that enormous doses are required in order to satisfy the morbid craving for the poison, which is slowly if surely disorganizing the patient's nervous system. Any acute disease affecting such an individual is very likely to lead to the severest prostration, and possibly may manifest itself in an outbreak of delirium tremens. Complete abstention is not advised in such a condition, the chief aim being to substitute a milder and less injurious agent for the raw spirit, and also in diminished quantities. For the distressing morning sickness so characteristic of this affection nothing can compare with the gastric siphon, in the author's opinion. The stomach should be washed out daily at first, and preferably before the midday meal, with a weak alkaline solution, and if constipation is present a dose of salts may in this way be readily administered. An hour afterwards an antiseptic should be given in the form of salol, naphthalin or sodium salicylate, whilst the general health is braced up by nux vomica, cinchona and capsicum. A fairly generous diet is admissible, varying according to the digestive powers of the patient. Insomnia must be treated if present, and trional is recommended, although its power is soon lost, and it must be used alternately with other hypnotics. Chloral is contraindicated in old alcoholics, owing to its influence on the heart. To relieve the morning sickness various agents are suggested, such as a cup of hot tea or coffee the first thing in the morning, a glass of cold effervescing mineral water, an icebag or a hot fomentation to the epigastrium, or perhaps, better still, the administration of small doses of cocaine by the mouth. To reduce the morbid craving for the drink, nothing succeeds so well as rapidly increasing doses of strychnine given hypodermically, combined occasionally with hyoscyamine.

The treatment of chronic alcoholism where the viscera are extensively diseased is always extremely unfavorable. Iodides which have the repute of benefiting sclerosed tissues may be tried with care, but as a rule the chief indications are simply for symptomatic treatment.

Periodic alcoholism or dispomania is looked on essentially as a monomania, which can be dealt with efficiently only in a suitable hospital or asylum. Alcohol must be strictly withheld, and powerful sedatives exhibited near the time of the expected attack. The prognosis is always extremely bad.

ON THE CURE OF DRUNKARDS.*

In this communication Dr. Forel answers some objections which have been raised to the method of treatment of drinkers in Switzerland. He has never found any harm arise from stopping completely the supply of alcohol at once to his patients, and usually finds that as soon as the delirium ceases they develop an excellent appetite. Of course those cases are excepted in which a fatty heart or organic lesions of the viscera are present. He seeks to supply the need occasioned by the absence of alcohol in temperance drinks by various fruit extracts, and mentions especially an extract of orange peel, which can be sold at a much cheaper rate than any alcohol. He emphasizes the necessity for the formation of suitable cheap temperance restaurants, or, as they are called in Switzerland, "*cafés chocolats*," and of temperance societies founded on various bases, some religious and others social in character; so that whatever the individual proclivities of the patient may be, he may find assistance outside of the asylum. Relapses must be looked for, but he agrees with other doctors in maintaining that a patient can be cured even after several such occurrences. He criticizes unfavorably the large American asylums, where a great number of patients are gathered together, and close personal study of the particular individuals becomes impossible. On the other hand, he thinks that the plan of building rural village colonies is much to be preferred, where perhaps not more than a dozen patients are dealt with in a separate building, superintended by a responsible and suitable agent.

ALCOHOL AND ALCOHOLISM.†

A most admirable and well-balanced article on the subject of alcoholism, looked at from a strictly scientific and philanthropic standpoint, and entirely devoid of anything that can be called fanaticism. The steady increase in the production of alcoholic drinks and in their consumption in France is first alluded to and proved by means of statistics, which also bring out the fact that the drinking habits of towns and great cities are much greater than those of the country, the mean consumption per head being greatest in Paris. The toxic character of various alcohols is then alluded to, and the well-known fact commented on that the higher the atomic weight the greater the toxic powers; and hence those products which are distilled from cider, perry, grains, molasses, or potatoes are infinitely more noxious than those derived from wine or the juice of the grape. The character of the ferment and the conditions under which distillation is undertaken, also influence the result to a marked degree. Hence it is evident that many of the results attributed to excessive drinking are due not so much to the amount of alcohol imbibed as to the toxic character of the compounds associated with it. The pathological results of alcoholism are then alluded to *in extenso*, special emphasis being laid on those affecting the nervous system, and on the influence exerted on the progeny of chronic drinkers in the production of epileptics and idiots.

The most interesting section of this communication is that dealing with the question of prophylaxis by legislative means.

Increasing the taxes on alcohol has often been undertaken, and always leads to the same results—viz., an increase of revenue with a scarcely appreciable, if any, diminution in the amount of alcohol used. Freeing the so-called hygienic drinks (tea, coffee, wine, beer, and cider) from taxation and placing a heavier impost on the poor potent fluids has just as little effect, as has been demonstrated in several States of America.

Reducing the number of licenses theoretically is an excellent idea, but it must be remembered that the number of licensed houses is the result and not the cause of the large consumption of alcohol, and practically it has not been found to be of much use alone. If, however, a reduction in the number of licenses is associated with measures restricting the production of alcohol and improving its purity, then satisfactory results may be expected to follow.

The Norwegian or Gothenburg system follows much along the lines just

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*Dr. A. Forel (*Gazette des Hopitaux*, March 4th, 1895).
†Dr. J. Roubinowitch (*Gazette des Hopitaux*, Feb. 26th, 1895).

indicated. Both the production and the retailing of alcoholic drinks are in the hands of the authorities, and by this means a pure article of less strength can be placed on the market, whilst both the State and the local authorities benefit from the traffic thus established. In Sweden the consumption of alcohol, which in 1871 to 1875 was 5·4 litres per head of the population, had diminished in 1886 to 1890 to 3·4 litres; and in Norway during the same periods from 2·4 to 1·5 litres. Lately there has been an increase in the amount used in Norway owing to the growing use of beer.

The Swiss system of State control deals mainly with the rectification of the alcohol, and has been found to work well both from a financial and from a medical point of view. The increased income is applied to combating the bad effects of intemperance by helping in the formation of inebriate homes and asylums, by assisting and protecting abandoned and orphan children, by subsidizing popular restaurants and canteens, and by diffusing useful and beneficial instruction of the people.

Finally the system of total prohibition as employed by six States in America has the merit of going to the very root of the matter, and especially in Maine has worked one of the most happy revolutions. The difficulty of enforcing such a system is the main objection to it.

The practical suggestions made by the author in order to combat the increasing influence for evil of alcohol are:—(1) Taxes on alcohol must still be maintained owing to the impossibility of raising a sufficient revenue without them.

(2) The State must assume the duty of preventing the issue of impure drink, and must thus control the rectification of the alcohol.

(3) A reduction of the amount consumed must be attempted, partly by reducing the number of licensed houses, partly by taxing heavily the more potent liquors, whilst the weaker—*e. g.*, wine, beer and cider—are exempted from taxation.

(4) Temperance societies must be started and maintained both to help those who have been reclaimed from drunkenness and to stimulate public opinion. Mention is made of several very successful Swiss and French societies.

Finally Dr. Roubinowitch discusses the treatment and best means of assisting those who have become the victims of alcohol. He insists on the paramonut importance of separating them from their old surroundings in homes, which must, however, be clearly distinguished from houses of correction and prisons on the one hand and from lunatic asylums on the other. For chronic drinkers who, though imbibing to excess, are rarely drunk he advises separation in what he terms "the home of abstinence and work," where total abstinence from alcohol is combined with physical work, especially in the open air. Some such patients are endowed with strong wills, and will readily be cured, whilst others will with difficulty be affected for good owing to their weak constitution of mind. For those whose mental powers and nervous system have been disordered through their excesses, special asylums should be set apart; some of the patients will be absolutely incurable, and must remain immured for life, whilst others will recover, and then, before sending them back to their occupations, a term should be spent in the "Home of Abstitence and Work." For those suffering from visceral affections, as of the liver, kidneys, stomach, etc., special abstinence hospitals ought to be founded. Certain steps towards these *desiderata* have already been taken in several placcs both in Switzerland and in France, but until there is more efficient State control of the liquor traffic the whole system cannot possibly be carried out.

Nephritis of Pregnancy.

Gossmann (*Münch. med. Woch.*, No. 26, 1895) does not find that this disease necessarily ends in chronic nephritis. He saw it recur in one patient during eight pregnancies, but she is still free from kidney symptoms when not pregnant. He finds that induction of labor by means of vaginal douches is perfectly simple, and in two cases this means alone proved sufficient. In one of them the child was saved and reared.

THE MEDICAL AND SURGICAL REPORTER

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PHILADELPHIA, SATURDAY, OCTOBER 5, 1895.

CORRESPONDENCE.

LETTERS TO MY ASSISTANT.

[Number 3.]

SERUM THERAPY; COLPOTOMY; PERSONAL NOTES; LOCAL ANESTHESIA.

BERLIN, SEPT. 11, 1895.

DEAR DOCTOR RECKEFUS:—Nearly four weeks since coming to Berlin, and the time has pleasantly passed, chiefly in attention to professional matters, some of which will now be stated.

The remarkable address before the Congress of Medicine, at Bordeaux last month, by Professor Bouchard, devoted to serus therapeutics (he has contributed largely to this treatment) concluded in these words: "Do not imagine, gentlemen, that the great therapeutic progress of which we salute the advent, will shake the ancient edifice of medicine, for it will only consolidate it; the new remedies have their place already prepared, and like the old ones, most frequently solicit the curative power of nature."

In Berlin I find applications of serum in therapeutics made by Dr. Schleich, which widen its field, and which are altogether novel to me. For example, Dr. Schleich, whose special work in renouncing general, and employing only local anesthesia in all operations will be presented in another part of the letter, dresses wounds with powdered serum, uses various pastes in which this is an ingredient, indeed has several ways of employing serum locally. So that you see between the hypodermic application of serum and its external use, this agent is taking an important place in therapeutics. Is serum to become as essential in pharmacies as bay rum in barber shops?

Dr. Martin, whose kindness to me I can never too highly appreciate, and for which I can never make adequate return, was here for several days after my arrival, and I witnessed many operations by him. Of course you know he is probably the most rapid operator in the world; for example, the time occupied by him in the doing an uncomplicated ovariotomy, is about ten minutes, that

is, it is ten minutes from the time the abdomen is opened until it is closed. I am quite sure that this celerity is in part due to the able assistance of Frau Horn, who stands at the side of the patient—Dr. Martin, as his father did, as Professor Winckel does, sits between the patient's lower limbs in all laparotomies—and has ready the instant it is needed knife, scissors, sponge, needle, suture or ligature, indeed anticipates rather than answers wants. She has been with Dr. Martin ever since he established his hospital, now about fifteen years, and has sole financial charge of the institution. Frau Horn is indeed a woman of wonderful ability, and would have succeeded in almost any occupation requiring a superior brain. But nearly two weeks ago I sent to a New York monthly journal a sketch of her, with photograph, which I hope will soon be published, and therefore I omit any further reference to her in this letter.

Colpotomy rules the hour in Berlin, and consequently the number of laparotomies is notably lessened; so too, colporraphies decrease. There have been done within a year at Dr. Martin's hospital, more than one hundred and twenty colpotomies; most of these, of course, by Dr. Martin. The applications of colpotomy are for the removal of diseased tubes, or diseased ovaries, of certain uterine myomata, and for the purpose of making vagino-fixation in posterior displacements of the uterus. Of course, too, vaginal extirpation of the uterus is a colpotomy. In one of the colpotomies I saw Dr. Martin perform, the uterus was so firmly bound down by posterior adhesions that the forceps applied to it to drag it forward tore the tissues into the cavity of the organ; the resistance was finally overcome, and the uterus everted through the opening in the anterior wall of the vagina, the torn tissues resected, and the wound closed with catgut; then the operation of stitching the fundus in anteversion was completed, and the vaginal incision closed; the patient did well. One of the most interesting cases I saw was the removal of the tubes for pyosalpinx, by abdominal section, and within ten minutes after the completion of the operation the demonstration of the gonococcus as the cause of the inflammation. The pathological work done in Dr. Martin's as in others hospital here, is great and valuable. Many of these private hospitals have a wealth of carefully preserved pathological specimens that would be invaluable in some of our schools. As I have seen some of these collections I could not help recalling one of Lord Bacon's wise remarks: "Money is like muck, not good except it be spread," and wondering whether a wider diffusion of these valuables would not increase their value.

Dr. Martin's "poliklinik" has many thousands of patients every year; one day, for example, there were one hundred. Of course with such a great number of dispensary cases, and his large number of private patients he has no lack of important operations.

Dr. Mackenrodt, once Dr. Martin's assistant, has now a "klinik"—by the way, the number of "kliniks," "poli-kliniks," and "private kliniks" in Berlin is so very great, I sometimes meet with two or three in walking a square—and I saw some interesting operations by him, among them vaginal extirpation of a cancerous uterus by the thermo-cautery.

While, as I have said, colpotomy is very frequently done in Berlin for the remedying of retroversion and of retroflexion of the uterus, it is not always an operation without unfavorable accidents or consequences. The ureters have been injured, aud I have been informed that cases of stone in the female bladder are becoming less rare. Not very long since a patient upon whom Dührssen had operated was pregnant, and in her labor, the anterior wall being so firmly fastened down, the development of the uterus having been only of the posterior wall, delivery was impossible through the vagina; the Cæsarean operation was done by Professor Gusserow, and the patient perished of secondary hemorrhage. Fixation of the uterus is essentially a violation of the law that the uterus is a mobile organ, and some operators, Landau for example, restrict the vagino-fixation to those cases in which it is impossible to wear a pessary.

Dr. Landau, the assistant for several years of Spiegelberg, has one of the best private hospitals I have ever seen. I could not ask either of Professor Landau,

nor his brother, who ably assists him, as to the cost, but while conversing with Dr. Wanscher, Professor in the University of Copenhagen, whom I frequently met at Dr. Martin's hospital as well as at Dr. Landau's, he suggested that the ground, building and equipments would require about one million marks. Only think of a doctor expending two hundred and fifty thousand dollars for a private hospital! By the way, Dr. Wanscher tells me that the University of Copenhagen, the only medical school in Denmark, requires six years' study on the part of its candidates for a degree. Thus it is seen that the Danes are next to the Hollanders in the period of medical instruction. I believe Sweden, too, requires six years.

My thoughts reverting to Holland for the moment, I fear that in the letter hurriedly written you from Rotterdam, I sent the Mayflower from Delftshaven with the Pilgrim Fathers, who had been sojourning in Holland. If I did let me retract the statement, for they went first to Southampton, and there embarked upon the Mayflower.

And now returning to Dr. Landau. He is a man of between forty-five and fifty, of delicate organization, and his manner, so cordial and refined, and his appearance and intellectual expression impress the stranger most favorably. In his operations he always uses ether (chloroform is the anesthetic generally employed in Berlin), but immediately that the operation is ended the patient inhales oxygen for a few minutes, and the consequence is that there are no unpleasant after-effects of the anesthetic, such as vomiting or head-ache. I know this, not only from the statements of Dr. Landau, but from several of the patients themselves. One of the most interesting operations I saw done by him was the removal, by colpotomy, of a myoma the size of a walnut, from the anterior wall of the uterus. The operation was done easily and quickly. There were colpotomies too, for the removal of diseased tubes, and several laparotomies for large ovarian tumors.

Dr. Schleich's "klinik," for surgery and diseases of women, is held every Tuesday and Saturday morning, from 10 to 12 o'clock, at No. 250 Friederich Strasse. I mention these facts for the benefit of those doctors from our country who may visit Berlin for the first time, and who will surely desire to witness Dr. Schleich's operations and study his method.

I read the following lines on the wall of the "klinik" room:

Prasento ægroto
Taceant colloquia
Effugiat risus,
Dum omnia
Dominat Morbus.

Asking Dr. Witto Wittkowski, Dr. Schleich's assistant, as to their authorship, he informed me that Dr. Schleich wrote them. Dr. Schleich is about thirty-seven years old. He was one year assistant to Professor Olshausen, and several years to Professor Helferich, Griefswald, and also for a time to Virchow. He has been nearly four years working with local, as a substitute for general anesthesia, and last year he published a work of two hundred and fifty pages upon the subject, *Schmerzlose Operationen*. Those who would understand his theory and method should study this book. He believes that at least ninety per cent. of all cases in which narcosis is employed for operations may be set aside by his method. He has three different hypodermic solutions employed as may be required, and I give the formula for each:

NUMBER 1.

Sod. chlorid. (2 parts).
Cocain muriat (1 part).
Morph. muriat (¼ part).
Distilled water (1000 parts).

NUMBER 2.

Sod. chlorid. (2 parts).
Cocain (2 parts).
Morph. (¼ part).
Distilled water (1000 parts).

NUMBER 3.

Sod. chlorid. (2 parts).
Cocain (⅛ part).
Morph. (¼ part).
Distilled water (1000 parts.)

I have seen several operations done by Dr. Schleich, which were painless, and only local anesthesia was employed. Three of these operations were: Removal, in a young man, of an ingrowing nail of the big toe, after the removal

the diseased tissue was curetted; extirpation of a tumor the size of a man's fist from the anterior wall of the chest in a lady, apparently about forty; and removing depressed bone of the skull, the subject being a boy of ten years, who, from a fracture occurring two years before, had epilepsy. Before an operation the part is well washed with marble soap, that is, a soap having intimately incorporated with it marble dust. Next it is washed with alcohol, and then a napkin dipped in a corrosive sublimate is applied. Next a few drops of "æthylchlorid" is applied to the skin so as to make it insensitive to the hypodermic needle puncture, and in half a minute the punctures are begun. The syringe usually employed is at least four times the size of that in common use. The first injection is superficial; it prepares the way for deep injections should these be necessary, and also for injections over a larger extent. For injection after injection is made, the needle penetrating each time in the territory that has been anesthetized, the several punctures being not more than the fourth of an inch apart. The injections cause the part to become immediately swelled and white—white as if the flesh of a corpse—and there is a temporary local death. I did not depend upon the response made by any patient to the question as to feeling pain, but I watched the face, and also observed the perfect quiet of the body. It seems to me that the three cases which I have mentioned are conclusive as to the value of Dr. Schleich's method. In the case of the tumor removed, not only was that removal painless, but also the stitching together of the margins of the crucial incision, and I suppose that there were nearly twenty stitches introduced.

I have mentioned the use made of serum powder by Dr. Schleich. There are several other preparations peculiarly his. Thus, instead of the ordinary mercurial ointment employed for introduction of mercury into the system through the skin, he has rubbed into the surface a mixture of mercury, serum-paste, and pepton-paste. The pepton-paste is made of pepton, gum arabic, glycerine, water, acetic acid, and talc powder. He uses successfully in endometritis an application composed of pepton and iodoform, the unpleasant odor of the latter being entirely destroyed by a few drops of oil of melissa.

Dr. Schleich has been for a few weeks experimenting with a new preparation he has made as a dressing for wounds, more especially if suppuration has occurred, and he calls it nuclein. Neither the mode of preparing nuclein, nor its exact composition, did I learn from him, but when he has a sufficiently large experience to prove its value—so far, the results have been satisfactory, almost surprising—he will publish a complete account of the medicine and its use. I have seen him apply it to a bubo after the pus had been evacuated, and in several other cases. Another new preparation he is experimenting with is cocail-in as a substitute for cocain. The former is an artificial product, made by Synthesis, a German manufacturing chemist. It has the chemical composition of the vegetable product, and can be furnished at half the cost. So far as Dr. Schleich's experiments are concerned the results are precisely the same as those obtained with cocain.

The marble soap referred to is not only used upon the part to be cut, but is also employed by the surgeon and his assistant to thoroughly cleanse the hands before operating.

Has Dr. Schleich's method been accepted in Berlin? Only by a small minority. Yet I am told that a few weeks ago von Bergmann used it, giving Dr. Schleich proper credit, in a public clinic, in the case of a patient whose heart was in such condition that anesthesia by inhalation was forbidden.

Dr. Schleich seems to be a man of great natural force, of originality, and of perseverance; he is an irrepressible. A prominent Berlin physician, an authority in nervous disorders, and who is personally known by several members of the American profession, himself a believer in Dr. Schleich's method, excused the slowness to believe in it on the part of Germans, as simply characteristic of their general unwillingness to hastily accept new things. Unquestionably the painless removal of a large lipoma, which I have referred to, no anesthetic inhalation being used, seemed to me one of the greatest triumphs of surgery. Dr. Schleich and his

method made a most favorable impression upon me, and I believe it only a question of time as to the general recognition of his important work.

September 13th.—My letter has been accidentally delayed, and I briefly add that I have been at Landau's "klinik" to-day, where I saw two cases of vaginal extirpation of the uterus by Dr. Theodor Landau, and also at Dr. Schleich's. The case of removal of depressed bone in a boy who had epilepsy has done very well, not one fit since the operation, though previously there were several every day. The boy looked bright and cheerful as he entered and left the room. He goes home on Monday. At Dr. Landau's I met with one of the five female physicians in Berlin, a very bright woman, the daughter of a general in the German army. She was formerly in Professor Winckel's Frauenklinik. The resident physician of the hospital, I may mention, is a graduate of the University of Bavaria, and spent a year in the Frauenklinik. Both of these doctors spoke so highly of Professor Winckel, for whom, as you know, I have the greatest admiration, and to whom I am so strongly attached that it made my heart glad, for just praise of a friend is always pleasant.

But I must close this letter in order that it shall go by to-morrow's steamer, and in a few days I follow it, returning, after a pleasant summer vacation, to my work. I must delay, until my return, any special account of the Bordeaux Congress, and then the story will be oral instead of written.

Respectfully,

THEOPHILUS PARVIN.

Pilocarpine to Abort Pneumonia.

EDITOR MEDICAL AND SURGICAL REPORTER.

Sir:—Since this is an age of advancement by means of experimentation, it behooves every intellectual member of the profession to lend individual assistance in promoting, in every way possible, that end.

For the past fifteen years I have used the muriate of pilocarpine hypodermically, for the purpose of aborting pneumonias and threatened fevers of various types, but more especially of the remittent and intermittent forms. For instance, where, from a recent attack of cold, a patient is threatened with pneumonia *per se*, or as a sequence to other diseases and fevers of a traumatic form, I at once inject into the arm one-fourth grain of muriate of pilocarpine dissolved in fifteen minims of aqua laurus cerasii at a temperature of 98° F. By this means I have never failed to promote profuse diaphoresis and thus have prevented threatened attacks of pneumonia, or any other inflammatory disease.

I should use the remedy more frequently than I do, if it were not for the exorbitant price we have to pay for preparations of pilocarpine.

A. O. STIMPSON, M. D.

THOMPSON, PA.

The Rush Monument Fund.

BALTIMORE, Sept. 23, 1895.

EDITOR MEDICAL AND SURGICAL REPORTER:—

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Further subscriptions will be acknowledged in these columns.

Very truly yours,

GEORGE H. ROHÉ,

Sec'y and Treas. Rush Mon't Committee.

SOCIETY REPORTS.

THE BRITISH MEDICAL ASSOCIATION MEETING OF 1895.*

It is now twenty-two years since the British Medical Association met in London, and in commencing a *résumé* of the work done on the present occasion one must be forgiven for looking backward and comparing and contrasting the state of affairs medically then and now. Sir William Fergusson, the President, was at that time approaching the end of his distinguished career, and Lister's influence was only just beginning to be generally felt. The most important address was that on Surgery, delivered by the late Professor John Wood, who dealt amongst other subjects with the treatment of wounds by the antiseptic method, to which he accorded only a half-belief, as from his experience it was scarcely to be trusted when erysipelas had manifested its presence in the wards, and he was urgent in demanding statistics in support of the Listerian claims. Mr. Callender and other surgeons also expressed the opinion that hygiene and suitable medical treatment had as much to do with the improved results of surgical operations as the use of antiseptics. Things are indeed changed at the present day, when the bacterial origin of infectious diseases is everywhere firmly established, and the anti- or a-septic treatment of wounds is universally practised. One disease after another is being proved to be due to some specific microbe, and bacteriology reigns supreme in the pathological world. Those, then, who had the privilege of being present at King's College Hospital, at the presentation of a testimonial in the shape of his painted portrait to Sir Joseph Lister, felt that it was a good and fitting commencement to the engagements of the Conference week on the present occasion. Sir John Erichsen paid a most graceful and fitting compliment to his former pupil in making the presentation, and the account given by Sir Joseph of the way in which he had been led on from one thing to another in the perfecting of his system was fascinating and memorable. His concluding remarks, when he strongly urged them not to be misled by the attractive but misleading promises of asepis, may well be laid to heart by practical surgeons.

The excellent, though inaudible, Presidential address on "The Power of Life in Life," coming from the lips of so experienced a physician as Sir Russell Reynolds, was an apt illustration of the direction in which all our chief advances have been made of recent years. The influence of glandular secretions on the metabolism of the body, the discovery of microbiology, and the installation of serum-therapeutics as a means of treating specific diseases, were alluded to by him as the chief manifestations of the fact that in living matter itself we have one of the most potent means of prolonging life and treating or preventing disease. The address on Medicine by Sir William Broadbent was retrospective in character, passing under review the well-worn topic of the advance of medical science from the time of Hippocrates and Galen down to bacteriology and antitoxins. Mr. Johathan Hutchinson took much the same line in his surgical address, reviewing the practice of surgery for the last century and a half. Though the subject-matter comprised much old and well-known history, several points of interest were brought out, and perhaps not the least of these was the frank admission that his own statistics in operating for stone by crushing, and in ovariotomy, had improved immensely since he had entrusted the performance to other hands; and on this ground he based a plea for the maintenance, and even extension, of specialism. Again, his well-known views on the subject of museum arrangements were brought to the front, and a more or less correct complaint

* This admirable summary of the Association proceedings is the editorial *resume* appearing in the (London) *Practitioner* for the current month, and is extracted from that journal.—Ed.

lodged against the authorities of the College of Surgeons that they do not transform their magnificent museum into one suited for the teaching of clinical surgery, instead of allowing it to remain a resort for students learning elementary anatomy, and a "Golgotha of Anthropology." The last general address, that on Physiology by Professor Schäfer, was a welcome departure from the general antitoxic chorus, in that it dwelt with the other side of the President's address—viz., the effect of internal secretions. Surely there is much truth in the assertion often made that we as a profession are swayed to an undue extent by fashion in therapeutics. A year or two back nothing was talked of but thyroid juice and other similar vital preparations. Now this subject is thrust almost entirely into the background, and but for Professor Schäfer's notice would have gone almost without mention during the Conference. Certainly his address should be carefully read and studied by every medical practitioner who would keep abreast of recent advances in physiology; and, fortunately, it is as lucid and interesting in composition as it is suggestive and practical in substance. It is impossible here to do justice to its claims, and therefore we shall not discuss it, beyond saying that it is the most admirable dissertation published on a subject which has a most brilliant and useful future before it.

Bacteriology and its offspring Antitoxins formed almost the sole topics of discussion in the

SECTION OF MEDICINE.

Diphtheria, pneumonia, and acute rheumatism were the subjects selected by the authorities for the formal debates, and in each of them the iniquitous and ubiquitous microbes were held responsible as the causative factors, although with some difference in the degree of guilt. Thus no doubt was expressed as to the influence of the bacillus diphtheria in originating that malady. The activity of the pneumococcus was held by many, but not by all, to be responsible for the second complaint, most speakers agreeing that other conditions were also present; whilst as to rheumatism, the microbic origin of the disease is inferred, and extremely probable, although at present not proven. Perhaps the chief point of interest in connection with the latter affection is the diversity of manifestations which are now ascribed, and apparently with justice, to a rheumatic origin. Thus, not only are the joint affections considered of this nature, but also many cases of tonsillitis, chorea, erythema, as well as the peri- and endo-cardial inflammations so often seen. The generally expressed opinion was that whilst some of these were caused directly by the microbe—*e. g.*, the arthritic conditions—others, such as chorea, were induced by the action of the toxins of the theoretical organism. Further investigations will be most anxiously awaited to ascertain whether this interesting conjecture is true or false. One voice was certainly raised against it in the most emphatic manner, viz., that of Dr. Haig, who, as is well known, maintains that all such conditions can be just as well explained by the theory that they are due to an abnormal formation of uric acid. It has been objected to his ideas that no evidence as to the existence of an undue amount of uric acid in the blood can be found. "Quite so," he replies; "it is not in the blood, because it is causing mischief by its presenee in the joints, or elsewhere." Then, too, he emphasizes the influence of diet on the disease, all those food stuffs being harmful which tend to increase the amount of uric acid in the system. Turning now to the therapeutic side, nothing of an antitoxic nature can be suggested in rheumatism until the organism, if one exists, has been isolated; and hence the use of salicin and its derivatives has not been superseded. In pneumonia, an antitoxin was talked of by one or two speakers, but nothing very definite has as yet been accomplished along these lines. Salines are to be depended on as a general rule, and in certain conditions other drugs, such as caffeine, strychnine, antipyrin, etc., must be employed for the treatment of symptoms. Really the chief interest of the section centered around the discussion on the use and value of the diphtheria antitoxin. In opening the discussion Dr. Martin stated that one of the chief aims of physicians in the past has been to discover some means of

loosening the false membrane, and that comparatively little notice had been taken of the general symptoms. Since the discovery of the true nature of the disease—viz., that toxic bodies are produced and absorbed from the false membranes which act directly on the nerve centres—and since it has been demonstrated that bacilli in their growth produce substances capable of restricting their own activity, or of counteracting the effects of their own growth, micropathologists have been working at the means of producing and separating these valuable bodies so as to render them accessible to the practitioner. The success of the treatment of diphtheria by this means is on all hands admitted to have been very great, and perhaps no better evidence of this can be adduced than the statistics brought forward in the course of the discussion by Professor von Ranke, of Munich. He stated that in 1892 his hospital mortality was 52·2 per cent., in 1893 46 per cent., whilst in 1894 up to September it was 57 per cent. Since the introduction of the antitoxic serum in that month his death-rate has been reduced to 17·7 per cent. Professor Baginsky, of Berlin, was able to report a similar diminution in his mortality, which had fallen from 41 to 15·6 per cent. No evident evil effects had resulted from the injection of the serum in the experience of most of the speakers, and thus this reagent received from international testimony a most commendatory *imprimatur*, and its value must henceforth be appraised at a high standard.

The proceedings in the department of

SUGERY

were on the whole of a high order of merit, and became distinctly interesting when the President, Sir William MacCormac, was describing the effects of the new-fashioned conical bullets in gunshot injuries; and even more so when Murphy, of Chicago, came upon the scene and gave an admirable demonstration on the cadaver of his intestinal button and its method of application. The presidential address was of a somewhat exhaustive character, and well illustrated with lantern slides and by wet and dry specimens. The effects produced by the conical bullet are usually of the most disastrous character, although the apertures of entry and exit may be comparatively small and insignificant. The current opinion that it causes less damage than the old round projectile hardly seems to be well founded. Certainly it was devised with no humane intention, and it seems admirably capably of throwing out of action, if not of killing, as many men as possible in the shortest possible time. Wounds involving only the soft tissues often heal with remarkable rapidity, and septic conditions are not necessarily induced by the passage of the bullet through the body. Cancellous bone can be penetrated without splintering, but compact tissue is much comminuted, whilst visceral lesions are always extremely severe. Fracture of the upper end of the femur was the first subject set down for discussion, and Sir William Stokes, who introduced it, almost took away the breath of his audience by claiming in the most matter-of-fact way that eleven different varieties of fracture of the neck of the femur should be enumerated, but how to distinguish between the several forms did not appear. Fortunately most, if not all, the speakers who followed were quite content with grouping them under two headings, the impacted and the unimpacted, and were willing to consider other modifications as interesting facts to be demonstrated in the museum, and not to be thought of at the bedside. Sir G. M. Humphry declared most emphatically that the non-union so much talked about, and unfortunately so often seen, was due not so much to the lack of blood supply, or to the defective general vitality of the patients, as to want of apposition of the fragments, and maintained that in any part of the body, if the fragments could be brought into close contact and kept at rest, union of a fracture was certain to occur. Mr. Bryant fully agreed as to this, and stated that, of forty-two consecutive cases of this nature treated by him in Guy's Hospital, the average age of the patients amounting to seventy years, all left the hospital with useful limbs, and scarcely any of them had suffered from bedsores. He, as well as other surgeons, thought that there should be no attempt at forcibly breaking up the fracture, which was generally

of an impacted nature, so as to restore the limb to the same length as that on the opposite side, except in the case of young and vigorous adults, and in such it should always be attempted. On Thursday there was perhaps less of general interest in the work of the section. Mr. Howard Marsh pointed out and illustrated the well-known fact that ankylosis can occur without suppuration. Mr. Buckston Browne showed how, in patients with enlarged prostates projecting into bladder, calculi could find a resting place beside the intravesical projection, and thus elude the search of the surgeon, even when armed with the sound or the cystoscope. This was followed by a consideration of the treatment of cysts and tumors of the thyroid body, Mr. Butlin leading the way in a most carefully thought out and clearly expressed speech, in which he recommended the enucleation of the growths rather than the extirpation of half the gland. He admitted, however, that the scar which resulted was a great objection to this proceeding, and stated that he had in a few cases returned to the plan introduced years ago by Sir Morell Mackenzie of injecting the cysts after emptying them, and had obtained thereby some excellent results. Dr. Keen of Philadelphia related that he had lately had the opportunity of seeing several operations performed for this condition on the Continent, and had been struck with several points in the technique of the proceedings which seemed to him of considerable importance. Thus Kocher and others rarely use an anesthetic, and find that by this means the bleeding is immensely diminished, since there is no engorgement of the head; the patient is also able to engage in conversation, and thus demonstrate the integrity of the recurrent laryngeal nerve. He also liked the transverse incision used by Kocher, and thought the scar would in this way be rendered less obvious, as also by the adoption of Halstead's subcuticular stitch. Several surgeons spoke against the method of injection, and Mr. C. Symonds urged the difficulty of always recognizing the presence of a cyst, and said the scar resulting from the open operation is so slight, especially if the incision is made in the median line, where it can easily be hidden by a necklace and locket, that one is not justified in exposing the patient to the risks of treatment by injection. The chief interest on Friday centred around the demonstration given by Murphy of Chicago as to the method of intestinal anastomosis by means of his button. Several very interesting points were indicated, and subsequently a number of cases related in which this method has been employed with varying degrees of success. One very discordant voice was raised during the morning, viz., that of Mr. Harrison Cripps, who strongly inveighed against the button, and ventured a prophecy that in a few years nothing more would be heard of it, basing his opinion on the fact that quite recently he had seen two or three fatal cases in which death had resulted, not from a failure in producing the anastomosis, but from the effects of the button after a successful anastomosis had been accomplished, owing to the apparatus sloughing through the intestinal wall. He prefers to depend upon his fingers rather than on any mechanical contrivance, although Mayo Robson's bobbin is among the least objectionable of these, and strongly recommended the adoption of Maunsell's operation. Prof. Macewen thinks well of the button, but himself prefers to employ some method of simple suture—at any rate, until more certain facts are known as to the value or not of the contrivance.

IN THE SECTION OF OBSTETRICS AND GYNECOLOGY

Sir William Priestly, the president, in his introductory address mainly dealt with the activity displayed in recent years in gynecological practice, pointing out how such opportunities could be abused, and warning his hearers against overdoing the operative side of their work. He also thought that a clear distinction should be drawn between the obstetric physician and the operating gynecologist, being quite confident that there is quite sufficient opportunity in either department for any man to exercise his talents, but that none should wish to be both physician and surgeon. The first subject that was under discussion was the all-important one of the best means of preventing puerperal fever in private practice. It was introduced

in an excellent paper by Dr. Herman, who, taking it as granted that all such conditions were due to the activity of septic organisms, and also admitting that complete sterilization of the vagina is impossible, maintained that the chief precautionary measures consisted in rendering the external genital organs as pure as possible by the use of antiseptics, which must also be used for purifying the hands of attendants and nurses, whilst instruments should be boiled, and clean absorbent materials employed instead of napkins and sponges. As to the maternal passages, he recommends that as few viginal examinations should be made as possible, that antiseptic lubricants and douches should be used, but thinks that in cases of normal labor healthy women do just as well without the douches as with them. Nurses, moreover, require more thorough training for private than for hospital work, because so much has necessarily to be left to their judgment, and they are not under the same discipline and control, whilst patients also are often extremely obstinate. The general trend of the discussion which followed was that antiseptic measures should be adopted in dealing with the external parts, but that the vigina itself should be dealt with aseptically, and no douches employed for normal cases unless the patient is especially desirous of it. The external genitals should be washed with a sublimate solution (1 in 2,000), the hands purified in 1 in 1,000 lotion, whilst instruments should either be boiled or immersed in a 1 in 20 carbolic solution. Dr. More Madden followed by recounting some of the more serious results which are found to follow untreated gonorrhœa, and urged that much greater care is needed in the treatment, especially of the early stages of this disease. Then the question of surgical treatment of puerperal fever was introduced by Dr. Murphy of Sunderland, who recommended the use of the curette, especially for sapræmic cases, the uterus being subsequently douched out and tamponaded with iodoform gauze. Of fourteen patients treated in this way, ten recovered. In localized peritonitis with a sero-plastic effusion, laparotomy was advised and the removal by lavage of the exudation; of such, four out of six cases recovered. One or two speakers protested against such interference, and Dr. Lusk went so far as to call curetting "a most mischievous procedure"; but as a rule, operative measures in septic cases were considered advisable. On Thursday Dr. Martin of Berlin discussed Anterior Colpotomy, the term given to an operation for opening up the anterior vaginal fornix so as to reach the front of the uterus and also the appendages. He was able to report 109 cases performed for medium-sized fibroids, retroflexion, small ovarian cysts, chronic salpingitis, and tubal gestation, with not a single fatality. He also strenuously appealed for a more conservative treatment of the tubes which in chronic inflammations or hæmatosalpinx may be opened up, washed out, and closed again. Most of the gynecologists present agreed as to the value of this operation, which is easily performed, gives good access to the pelvic viscera, and also enables the intestines to be readily seen so that adhesions can be safely dealt with. The uterus is finally anteflexed and fixed to the anterior wall of the vagina by the sutures used for closing the wound. Subsequently Dr. Swayne of Bristol inaugurated a discussion on Eclampsia, in which a large number of divergent opinions were expressed as to the most suitable treatment, from which we gather that no two cases must necessarily be treated in the same way, but that all must be dealt with on their own merits. The early diagnosis of malignant disease of the uterus, and the question whether partial or complete excision should be undertaken, was the chief subject chosen for Friday's meeting. It was introduced by Mr. Knowsley Thornton, who maintained that careful clinical investigation should enable the doctor to make an early diagnosis without the need of removing a portion of the growth for microscopic examination—a proceeding which he considered distinctly dangerous in that it opened up lymphatic channels and veins, and might thus lead to secondary infection. He appealed to general practitioners to attend most carefully to any slight discharges or losses of blood, and subsequent speakers again emphasized the importance that must always be attached to such losses, especially after

the climacteric. Mr. Thornton advises supravaginal amputation of the cervix for adenoma and epithelioma, but owing to the great frequency of recurrence considers that total extirpation of the uterus is unadvisable. Dr. Martin, on the other hand, thinks that cancers of the womb should be treated on the same lines as scirrhus mammæ—*i. e.*, the whole organ should be removed at as early a date as possible. Prof. Pozzi of Paris condemns supravaginal amputation, especially before the menopause, as useless, recommending total extirpation in the early cases; and in the latter curetting and the application of the actual cautery. Certainly to an unbiased mind the latter suggestion seems most in accordance with the principles which guide us in the treatment of malignant disease elsewhere.

Perhaps the most important item in the work of the

SECTION OF PUBLIC MEDICINE

was the introductory address of the President, Mr. Ernest Hart, who dealt with the need for further legislation in order to ensure the appointment of medical officers to the various County Councils, so that their work may be rendered more effective. He then passed on to the importance of increased attention to our water-supplies, in view of his belief that cholera, typhoid, and many other diseases are waterborne. Finally, he commented on the absolute necessity of a reconstruction of the medical services in India, where the authorities seem quite satisfied to allow cholera to rage as an endemic affection, and take but slight precautions to ensure a pure water-supply. Moreover, the present medical staff is quite overworked, and military surgeons are tied down in a most hopeless way by regulations which, whilst enforcing all sorts of futile arrangements should an outbreak of cholera occur, take not the slightest regard as to purifying the water by boiling or filtering. Very wisely, the Section passed a resolution calling the attention of the Secretary of State for India to these facts, and demanding the appointment of a Royal Commission to consider them. Many other subjects of interest —such as the meat supply, sewer ventilation, the question of hospital isolation, and the disinfection of patients— were discussed by the Section, and Dr. G. V. Poore gave an account of some most interesting experiments which he had made on the effects of treating urine in various ways, which went to prove that, when mixed with absorbent material and exposed to the air, it never became offensive, and might lead to the formation of a solid residuum of considerable value as a manure.

A very useful discussion took place on the opening day, in the

SECTION OF PSYCHOLOGY,

on the treatment of Melancholia, being introduced by Dr. Rayner in a well thought out and clearly expressed paper. He suggested that no routine method was possible in dealing with these cases, but that the general condition of the patient must be most carefully considered. In some, where the nutrition was failing, rest and even over-feeding should be recommended; whereas in other cases exercise in the open air, not carried, however, to the point of fatigue, together with suitable companionship, was desirable. Other speakers quite endorsed these opinions; but it was suggested that a sea voyage should not be advised too generally, as the patients were not always able to stand it, and as so many opportunities for suicide offered themselves under these conditions. The value of Hypnotics was also a good deal discussed, and on the whole one gleaned that the less they were employed the better.

A large range of subjects passed under the notice of the

SECTION OF PATHOLOGY,

few of which, however, call for notice here. Dr. Patrick Manson gave an excellent demonstration of the life history of the malaria parasite, which he maintains passes through the body of the mosquito, and there develops flagella which later on break off and constitute the spores which, on their admission to the body of the human subject, suffice to light up the disease. The possibility of its becoming encysted, as do many of the sporozoa, was suggested as the explanation of the recurrent attacks of malaria which frequently occur at a considerable period after the original attack.

Mr. Targett showed an admirable series of lantern slides indicating the character of the articular lesions found in syringomyelia; they are essentially similar to those met with in Charcot's joint affection. A discussion followed on the Ætiology of Cancer, opened by Dr. Braithwaite, in behalf of the microbic theory. His conclusions were vigorously attacked by Mr. Shattock and others, who maintained that the supposed histological appearances were in no way evidence of any such supposition. The most valuable item of the later proceedings consisted in a debate as to the nature and nomenclature of lymphadenoma and allied diseases. The general idea which prevailed was that lymphadenoma (or, as Mr. Spencer, who opened the subject, preferred to call it, lymphoma) is due to some specific organism not yet identified, and that it must be placed midway between tubercle and malignant disease. In some instances its manifestations were entirely local, being limited to one gland or to a single group of glands, whilst in the more severe cases it was disseminated throughout the lymphatic tissue of the body, constituting then the condition known as Hodgkin's disease, an affection which might or might not be associated with leukæmia. Lymphosarcoma, on the other hand, is a disease quite apart from those mentioned above, and consists in a true primary sarcomatous development within the gland.

The topics of discussion in the

SECTION OF OPHTHALMOLOGY

were not of general interest. The first formal discussion brought out the fact that there are a series of cases of recurrent inflammation of the deeper parts of the conjunctiva which are rather general than local in origin, and need careful attention to the general health as well as local treatment. But the most valuable work was the debate on the treatment of chronic glaucoma, as to which a certain amount of difference of opinion was expressed. The most competent authorities, however, almost unanimously agreed as to the desirability of performing a large iridectomy far back as soon as the symptoms had manifested themselves with certainty. There was also a general consensus of opinion as to the value of a cystoid cicatrix, although it was thought that this is not easy to obtain. Prof. McHardy recommends the removal of all pads at the end of a few hours after the operation, and the use of a special nurse to support the eye during any efforts which involve straining, stating that such practice in his hands has been most satisfactory. All agreed, too, as to the need of attending most closely to the general health, so as to prevent constipation, undue fatigue, etc.

The department devoted to

DISEASES OF CHILDREN

was well attended throughout, there being on the first two days an average attendance of at least seventy members. The first portion of Wednesday morning was devoted to a consideration of Syphilitic Manifestations in Bones and Joints; but although several well-known authorities took part in the discussion, nothing very special was added to our knowledge of the matter. A considerable degree of interest was attached to the next subject brought forward—viz., the Radical Cure of Hernia. Mr. Rushton Parker opened with an excellent paper, in which he mentioned that he had performed the operation on forty male children, with two deaths; but in spite of this unusually high mortality he considered that it was a distinctly desirable proceeding. Like Prof. Macewen, who spoke subsequently, he had commenced by being strongly opposed to surgical interference in the case of children, but as time had passed he has been more favorably impressed with it, especially in hospital and dispensary practice, where it is almost impracticable to get the children properly attended to if a truss is ordered. The tissues of children are quite sufficiently firm to stand the manipulation, and if care is taken the constituents of the spermatic cord run but little risk of damage. The recuperative power in children, moreover, is so great that the wounds heal most admirably, and on the whole the prognosis is better in children than in adults, although it is generally agreed that six weeks' recumbency is essential in order to allow of consolidation of the parts. The operations chiefly commended were those described by Mitchell Banks and

Macewen; but even if the latter is undertaken, the inguinal canal should never be opened up. Mr. Waterhouse made a useful suggestion as to the dressing, all that is needed, in his opinion, being the application of a little celloidin collodion, in which celloidin takes the place of the gun-cotton employed in its production. This is quite impervious to urine, and thus the wound is securely sealed up. Naturally there were a few dissentient voices in the discussion, amongst the most marked being those of Messrs. Langton and Macready, who, as one might expect from their position as surgeons to the Truss Society, maintain that any case of hernia in a child can be readily cured by the application of a suitable truss. On Thursday the chief matter under consideration was the Nervous Sequelæ of Acute Infectious Diseases in Children, and all the speakers were agreed as to the rarity of such conditions, most of them having seen but three or four cases each. The type of lesion varied, those most commonly observed being acute poliomyelitis, paralysis of the ocular muscles, thrombosis of the cerebral veins, or even paralysis of peripheral nerves, such as the ulnar or popliteal. Dr. Barlow considered them more frequent after measles than after other fevers, and gave an instance in which a young policeman was attacked after measles with a transverse spinal myelitis, which terminated fatally and revealed *post mortem* a large number of punctiform hemorrhages in the dorsal cord, which he compared to the eruption on the skin. Von Ranke had also seen a case of paralysis after pneumonia in a boy, and agreed with the general opinion that such phenomena were probably due to the action on the nerve centres of the specific toxins of the microbes. Amongst the separate papers which were read may be mentioned one by Comby, who related three cases which were clinically indistinguishable from diphtheria, but in the exudation of which no bacilli were discovered. He gave a good prognosis, and this was fully justified by the result. He urged in consequence the need for a bacteriological examination of the false membrane in all suspected cases, and the guidance of the prognosis by the results thus obtained. Telford-Smith, of the Lancaster Asylum, related the after-history of two cases of Craniectomy for microcephalic idiocy, and agreed with the idea now generally held that any good arising from the operation is due as much to the careful after-training always instituted as to the operation itself. The value of trephining in tubercular meningitis also received attention through a paper by Dr. Cautley, who thinks that but little good can arise from such treatment. Although Mr. D'Arcy Power has not yet saved a child by this means, he has, in six or seven instances, seen a temporary improvement, and thinks that the operation is distinctly justifiable. Mr. Waterhouse referred to his well-known successful case, which still remains well, but anticipates that only in a few instances can recovery be expected, as general tuberculosis so often co-exists. A single tapping is absolutely useless, continual drainage for ten or fourteen days being essential, and this is possibly best secured through the occipital bone by lifting up the cerebellum.

The work of the

SECTION OF OTOLOGY

was, on the whole, of too specialized character to be of much interest to the general practitioner. The most important points raised were twofold. Firstly, it was generally agreed that pilocarpine can do but little good for nerve deafness, except perhaps in a few early cases to assist in the absorption of any exudation which may be present; and secondly, Professor Macewen read a most suggestive paper on "The Intracranial Complications of Chronic Otorrhœa," in which he dealt with a few points of difficult diagnosis, and then urged upon his hearers the need of maintaining the most absolute asepis in examining or operating upon the ear or its adnexa. Thus in tubercular cases, to which he especially alluded, the entrance of sepsis changes the aspect of the condition at once, the septic element becoming the "predominant partner." Moreover, by a most apt quotation from "Richard II.," he emphasized the need of care in operating, for fear that "a pinprick" may admit sepsis to the meninges, "and—farewell, king!"

As to the department of

PHARMACOLOGY AND THERAPEUTICS,

Antitoxin was again to the front on the first day, the usual *couleur-de-rose* reports being indulged in by all the speakers, with perhaps one or two exceptions. Tetanus was in this discussion alluded to, as well as diphtheria, but the more recent work in connection with erysipelas, cellulitis, and the treatment of malignant growths was scarcely referred to. A most valuable paper on "The Antitoxin of Snake Poison" was contributed by Professor Fraser, of which probably a good deal more will be heard. On the second day the requirements of the profession, in view of the approaching revision of the Pharmacopœia, were under consideration, and a good many useful suggestions were made, several of which, we understand, have already been conceded by the Pharmacopœia committee—*e. g.*, the introduction of the metric system, which will stand side by side with the old measures in most places, but will be used alone for the standard testing solutions always described at the end of the work. Some of the suggestions which had reached the committee, according to the secretary, Dr. Tirard, were almost ludicrous. Thus one gentleman wished a bug-powder to be included amongst the official drugs, whilst another desired goose-grease to be introduced, and still a third thought that geological experts should be added to the committee to decide whether alum is derived from shale or clay!

THE SECTION OF LARYNGOLOGY

was particularly wise in not providing itself with too long a programme, and was thus able to get through everything set down in the syllabus. Moreover, it confined itself rather to formal debates than to the consideration of a series of haphazard papers. It commenced by a discussion on the etiology of nasal polypi, and although nothing much new was added to our knowledge of the subject, yet the views of Zuckerkandl, who contributed a short practical paper, were in the main accepted. Nasal polypi are by him looked on in much the same way as those which appear in the ear, and are considered to be inflammatory in origin, the subjacent bone being often associated in the change. Woakes's necrosing ethmoiditis was by almost all the speakers looked on with doubt, one expressing surprise that anyone took it seriously. On Thursday the chief subject for debate was as to the infectious nature of "Lacunar Tonsillitis" (as the disease is now termed which we formerly knew as "Follicular Tonsillitis.") The ideas as to the nature of this affection have considerably changed during the last few years, and scarcely anyone now doubts its septic origin. The main point as to its infectiousness was not clearly proved by any of the speakers, although all seemed prepared to accept it. The most interesting of the three formal discussions was, undoubtedly, that which took place on the third day, on the "Indications for Early Radical Treatment in Malignant Disease of the Larynx." This was introduced in a well-balanced and judicial paper by Dr. Bryson Delavan, of New York, who set forth clearly his views as to when the operation should be undertaken, and the requisites in order to ensure success. It must never be looked on as a simple proceeding, or as one devoid of risk, and its execution should be limited to those who can be so well assisted and who can command such experience and skill as shall ensure as far as is possible a successful issue. Mr. Butlin, who followed, entered somewhat more fully into the minutiæ of the surgical technique, and remarked that, judging from the statements and writings of American and Continental *confrères*, the subject of laryngectomy is further advanced in this country than anywhere else. The general idea running through the animated debate which ensued was that the all-important essential was an early diagnosis, and this could only be the result of the general recognition of the principle that every case of persistent hoarseness must be examined by a skilled laryngologist as soon as possible. In cases of doubt, an exploratory thyrotomy is quite justifiable, and in this way it might be anticipated that the disease would be recognized before it had attacked the cartilages, and could then be dealt with by cutting or scraping the new growth away, without necessitating the removal of the larynx. In fact, the

hope was expressed that in the future laryngectomy would be looked on as the opprobrium of laryngologists.

As to individual papers read before the Section, the only one which requires notice here is that which was presented by Dr. Risien Russell, who by most careful experiments has been able to demonstrate the existence and position of the cortical centre presiding over abduction of the cords. Former experimenters—such as Semon, Horsley, Krause, and others—had never been successful in their search for this centre, owing to the preponderance of abduction always present. But Dr. Russell had been able to separate the abductor from the adductor fibres in the recurrent laryngeal nerve by splitting it longitudinally, and then after dividing the adductor fibres stimulation of the suitable cortical area with a week current sufficed to produce typical abduction.

THE DERMATOLOGICAL SECTION

was largely occupied with the consideration of unusual cases and rare affections of the skin, of which a considerable number were shown. Two general and prearranged debates took place, one on "Pruritus," and the other on the "Influence of Diet in the Ætiology and Treatment of Diseases of the Skin." From the former there was but little new to be gathered, the general impression given the discussion being that pruritus is almost incomprehensible in its origin, and exceedingly intractable in its treatment. As to the question of diet, a most masterly and lucid paper was read by Dr. Walter G. Smith of Dublin, and he, together with several other speakers, agreed that too much stress is often laid on the question of diet in the treatment of such diseases as psoriasis and eczema, and that it is often unwise to torture patients by too much limitation in this direction. Of course in such conditions as urticaria the question of diet is all-important.

Necessarily the work of the

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was of too technical a character to be of much general interest. The discussion, however, in the former Section as to the use of sugar as a food is worthy of a brief notice, in that it involves questions of considerable importance as to the diet of those who have to undertake heavy muscular exercise. Prof. Stokvis of Amsterdam attempted to prove that the conclusions drawn by Dr. Vaughan Harley on this subject are erroneous, and that sugar, if it is a food at all, can only be looked upon as a bad food, much inferior to proteids as a work-producing substance. It was also suggested that Dr. Harley's experiments, carried out on himself, introduced considerable elements of possible error, and Dr. Pembrey emphasized the point that a psychical factor might be present, in that the experimenter came to his work with a strong bias in favor of the point which he desired to prove. On the whole the question must still be considered *sub judice*, although, as Prof. Halliburton showed, the common consent of athletes cannot be entirely overlooked, and by them proteids are unanimously chosen for training on rather than carbohydrates.

In conclusion, the present meeting of the Association can scarcely be looked on as one of epoch-making importance. Doubtless it has brought home to practitioners the fact that in the serum of suitably immunized animals we have an agent of considerable potency which is capable of dealing efficiently with certain diseases of bacterial origin; but in all probability the present somewhat cumbersome method of producing and utilizing it will be considerably improved upon, and later on simplified. The other important feature was rather suggested than demonstrated—viz., the influence of internal secretions on the metabolism of the body. We may confidently anticipate that the following up of this line of research will lead us to the discovery of the cause of sundry diseases, the ætiology of which is at present very obscure, and may place in our hands remedies as useful and beneficial as thyroid extract is in cases of myxœdema. Beyond these salient features but little stands out as really noteworthy. Much has been mere reiteration of facts already well known, and we trust that the attempt to sift the material, and place before our readers the conclusions arrived at in a concise and definite form, will not have been without interest.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

Diseases Which May Stimulate Pleurisy.

An American contemporary recently delivered an excellent sermon on the diagnosis of pleurisy, the text being the following quotation from a lecture of Trousseau; "I admit that in the great majority of cases pleurisy is a very easy disease to diagnose; however, there occurs cases in which, while all signs of pleurisy are present, yet the autopsy shows some other affection to be the cause of death." The writer groups the diseases which may similate pleurisy with effusion, thus: 1. Diseases of the pleura. Excepting hydatid cysts, these are rare, the only one mentioned being a case published by Ouliment, in which cartilaginous degeneration of the pleura gave rise to dulness, bronchophony, and absence of vibrations in such a way as to make the diagnosis of pleurisy clear, and it was only at the autopsy that the true condition was discovered. 2. Diseases of the lungs. Under this group are included pneumonia with bronchial obstruction (in which the temperature often forms the only guide), "spleno pneumonia" (a disease which we hear of for the first time, and which is, according to Graucher, a pulmonary congestion whose symptoms resemble those of pleurisy), hydatids of the lung and pulmonary carcinoma. 3. Diseases of the mediastinum, among which it is stated that both cysts and aortic aneurism have been mistaken for pleurisy. 4. Diseases of the liver, especially hydatid cyst when they encroach on the thoracic cavity. Error of diagnosis here can only be avoided by carefully tracing the limits of dullness. Hepatic carcinoma has also given rise to a false diagnosis. 5. Diseases of the kidney, men tion being made of one case of perinephritic abscess which closely simulated pleurisy.—*Med. Times.*

A Constant Sign of Commencing Meningitis.

This consists in the inharmonious movements of the chest and diaphragm. It exists from the beginning, and may serve to reveal it even in insidious cases. It requires careful searching. The chest and abdomen must be bared, but not suddenly, or the hyperesthetic skin will take on accidental movements from the action of the air.

In the first period of meningitis we see irregularity of rhythm and then remark the inequality of the amplitude or development of the chest. Another sign is the irregular type of respiration and dissonation of the movements of chest and diaphragm. The respiration is effected by the lower respiratory muscles of the chest. Looking at the umbilical region, instead of the normal elevation with each inspiration, there is either immobility or depression. These movements are not connected with the Cheyne-Stokes type of respiration.—*Times and Register.*

Strychnine Delirium.

Those members of the medical profession who have employed caffeine very largely in the treatment of cardiac and renal disease have recognized that large doses of this drug, continuously administered for a considerable period, developed in certain individuals what has been properly called "caffeine craziness." In other words, the full medicinal doses required by the condition of the heart or kidneys have also been sufficiently large not only to produce an increased activity of the brain, such as is seen when coffee is taken in large amounts, but also have gone farther than this, and by the very cerebral stimulation produced temporary insanity. Within the last few years the medical profession has been employing in certain States what may be considered as massive doses of strychnine in the treatment of failing respiration or circulation, and has obtained therefrom very good results. It having been found that these full doses of strychnine acted favorably, when given in an emergency, we have been tempted to continue their administration where the symptoms were relieved but temporarily, and, as a result, have oftentimes been pleased with their effect. On the other hand, a sufficient number of cases have been seen in which cerebral disturbance has followed these large doses to put us continually on the lookout for such untoward symptoms. As a rule, he who administers large doses of strychnine in an emergency is on the *qui vive* for some twitching of the muscles of the forearm or other portion of the body as an evidence of the physiological action of the drug. While we believe that these symptoms are commonly produced by a single administration of the remedy, we are also confident that its continued administration in full doses frequently fails to produce these evidences of heightened reflex activity, and in their place causes a more or less active de lirium, in which the patient frequently refuses to take his medicine, or develops the delusion that his attendants are conspiring to poison him or do him some other injury.—*Therapeutic Gazette.*

Excursion Rates to Atlanta.

On account of the Atlanta Exposition, the B. & O. R. R. Co. will sell excursion tickets at greatly reduced rates. Season tickets will be sold every day until December 15th, good returning until January 7, 1896. Twenty-day tickets will be sold every day until December 15th, good returning for twenty days from date of sale. Ten-day tickets will be sold Tuesday and Thursday each week until December 24th, good returning for ten days from date of sale. The rates from Philadelphia will be $33 25 for season, $25 25 for twenty-day, and $20.00 for ten-day tickets.

Correspondingly low rates from other points on the line.

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ORIGINAL ARTICLES.

RESPIRATION, SUFFOCATION AND RESUSCITATION.*

THE MAIN PHYSIOLOGICAL FACTORS WHICH PLAY THE RÔLE IN RESPIRATION, SUFFOCATION AND RESUSCITATION, AND THE AUTHOR'S METHOD OF PNEUMATIC ARTIFICIAL RESPIRATION.

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We have a number of different modes of artificial methods of respiration at our disposal, each having its special feature recommending it, and bearing the names of such men as Sylvester Hall, Fells, Laborde and a few others. All these are generally known, so no recapitulation of them need be given. In this paper I give the world a new and original method which is here explained and is destined to bear my name.

The pneumatic artificial method of respiration is founded on the physiological principal of establishing a rythmatical breathing, which is carried out by means of, viz.: 1. Tubing the glottis. 2. Connecting the tube with an air tank filled up either with nature's diluted oxygen (plain atmospheric air), oxygen gas, or with a bellows if either is not at hand. 3. The expiration is performed by allowing the expired gases to flow off by a special valvular opening, working automatically as the rhythm of respiration occurs. 4. Air is forced into the lungs by the different graded pressures contained in the receivers and controlled by a special pressure controller. 5. Forced respiration and expiration is under perfect command of the operator. 6. The method can be put into action in a few seconds of time and continued without detriment to the partially electrified, drowned, suffocated, etc., for hours at a time. 7. Any one with small amount of intelligence can perform the operation.

Giving this outline of explanations of what is to follow in detail, one can at

*Original communication to the Academia de Ciencias Medicas, Fisicas Y Naturales de la Habana, 1895.

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once form his own opinion of the importance of a complete physiological method of breathing by proxy for a subject that received a non-lethal accidental dose of electricity, or became asphyxiated from gas, drowning, opium poisoning, ether, chloroform and many other causes where the main treatment remains the keeping up of suspended respiration.

This method of carrying out rythmatical breathing by means of catheters and rubber tubing has been employed by me since 1888 in connection with operative work about the larynx, mouth and nose. A report of these proceedings was read before the American Medical Association, section laryngology, June, 1890: "The Value of Intubation of the Larynx in Connection with Other Operations, Etc." In May, 1893, by this method, with Dr. M. M. Weill, I saved the lives of three persons from illuminating gas after 13 hours' exposure. The *Therapist* for November, 1893, contains a description of the procedure at that time and clinical notes of these cases. Since then the apparatus has evoluted from several models of mine into a more complete mechanical construction.

As others have trespassed on my method and mechanical construction of this tube without giving me credit for the same, I am forced, openly, to claim my priority for all methods of artificial respiration in which the glottis is tubed for the purpose of resuscitating individuals after that manner. Several have since then laid claim to similar apparatus, when practically they were planned on tubing the glottis. I find that Dr. O'Dwyer has followed me also by one designed on principles of my own, and calls it *artificial forcible* respiration, which bears his name, but under the above claim and dates I am the first to have made the use of tubing of the glottis for carrying out direct artificial respiration in asphyxiation, from whatever cause.

Leaving all this to be judged by my peers regarding the equity of my claims and value of my method added to those already in vogue, I go on with the subject matter before me.

The points of procedure in performing artificial respiration by this method are in short as follows: Any one who has ever performed the passing of an œsophogeal sound or feeding tube can without difficulty pass the instrument into the vault of the larynx. The main features to be kept in mind are these: The patient is made comfortable on a flat table or floor, and all dress apparel about neck, chest and abdomen must be removed. The head is placed into a narcosis position and kept in that way as long as the operation is being carried out. Sometimes it is well to pass the tube in a sitting posture until it is piloted into the larynx. This choice of position remains as choice to the operator. When once the apparatus has reached the larynx, as it is nearly at right angles with the chest, keep the head extended during artificial respiration and the body recumbent. Once the tube passed it can be most easily controlled throughout without any difficulty for hours. The entire apparatus is made ready by attaching the tubing to the air tank, and from thence to the tube handle or bellows in a moment. All attachments are arranged with bayonet joints. A gage is placed in the angle of the mouth. The special size tube can be selected according to age and size of larynx. The expiratory valve must remain open while tubation is being performed until it is passed, then closed by lifting the finger off and the air allowed to pass through the inspiratory valve. When all is done a perfect rhythm of expiration and inspiration can be performed according to the will of the operator.

Once all connections are made from cylinder to tube, or from bellows to tube, time does not play any role. Hours can be given to it without tiring the operator. After once the respirations are started, make the rhythms from 10 to 15 minute. This should be continued until patient begins to show physiological efforts.

The tubes are so appointed that they allow no inspiratory or expiratory air to pass out between any space in the larynx or vault while in position. They assume a shape to fill up the entire larynx. This is important, so that air flows directly into the lungs and is there diffused and taken up by the tubes, air cells, etc. The handle to which the tube is attached must always remain in

the hands of the operator, and so controlled by him according to his judgment. The right hand controls the handle and tube, and the left the valve from the air tank. Both hands are made to act in exact rhythm and time of inspiration and expiration.

The life-saving value of artificial respiration cannot be doubted for a moment by any one well informed upon its teeming literature and in the practice of medicine. This has been demonstrated to us on many an occasion. If we picture some of the many thousands of narratives which have been printed in our dailies, saying nothing of those in medical reports of the varying cases that we have been confronted with, we would be amply repaid for the struggle we undertook in saving souls from going to an untimely and perhaps a regretted end. Every day physicians meet with cases which have a history to tell or a pent-up skeleton hidden, and if they could be guided over a certain period of time, a possible suicide sometimes, if recovered from the jaws of an impending death by such means in our power, would no doubt lead such a one to happier days. There are many causes for these self-robbers of life, and no one can appreciate these morbid morals until he has riden such a road from which end but few return to tell the tale.

Such accidental and intentional suicides we are brought face to face with daily, in which artificial respiration is the only remedy which must and can be employed to stay the last sparks of an ebbing life. In those who have gone beyond the pale of human sagacity, we know who has thus suddenly arrested the wondrous mechanism, and in the place of palpitating, vigorous beings, leaves them silent corpses. The cause seems so trifling that we can only marvel at its importance when revealed in the effect; it is the same in all such cases, in spite of the difference of the means, that which kills one kills the other; the fumes of gas, the opium, the rushing waters, accidental contact with electrical currents, of which a few cases are recorded which have survived when artificial respiration was resorted to and such same means interrupted the exchange of a small quantity of gases, and by preventing the blood from getting rid of its carbonic acid, in exchange for an equivalent of oxygen, the fervid wheels of life were suddenly arrested. It is the same cause acting with milder force which makes the faces pale of those who issue from a crowded church, and gives a languor to those who have sat for some hours in a theatre, concert room and any other ill-ventilated apartment in which human beings have been exhaling carbonic acid and other material from their lungs. A breath of fresh air quickly restores them, and after breathing this fresh air during a walk home they scarcely feel any evil results of the late partial suffocation. So, if in certain of those accidental and intentional cases artificial respiration could be employed in time, the chances for recovery would have been in their favor, as our concert-goers are restored by the first few whiffs of nature's diluted oxygen.

Among the earliest experiences of mankind must have been the necessity of fresh air for the continuance of life; but the complete explanation of the fact, in all its details, is a scientific problem, the solution of which only began to be possible when Priestley discovered the gases of which the air is composed and the relation these bear to the organism. Nor is the problem even now entirely solved, in spite of the labors of so many illustrious men. We have learned much and learned it accurately, but the difficulties which still baffle us are many and considerable. The ancients really knew nothing of this subject, nor did the men of the sixteenth and seventeenth centuries lay any solid foundation stone. That was laid by Priestley when he discovered the oxygen contained in atmospheric air to posses the property of converting venous into arterial blood. Lavoisier carried out this discovery, and founded the chemical theory of respiration. Goodwyn (1788) applied the new views to asphyxia, showing by a series of experiments that when air was excluded venous blood remained unchanged, and when it remained unchanged death inevitably followed. Bichat instituted a number of striking experiments to prove that an intimate relation existed between respiration, circulation, and the nervous action. He showed how access

of venous blood to the brain stopped its action, and subsequently stopped the action of the heart. Legallois extended these observations to the spinal chord. But by far the most brilliant investigations on the subject of respiration are those of Spallanzani, whose Memoires still deserve a careful study, both as models of scientific research, and as storehouses of valuable facts. He was succeeded by W. F. Edwards, whose Influence des Agens Physiques sur la Vie remains one of science's monuments, and of which it can boast as one of its best works. During the present century hundreds of physiologists have devoted labor to the elucidation of the various difficulties which darken this subject, and a vast accession of valuable facts has been cleared up which we may now endeavor to exhibit.*

And, first, let us ask, what is respiration? A question which many may regard as idle; yet, until it is answered in something like a definite manner, we shall find our inquiries constantly obstructed. Reduced to its simplest elements, respiration appears to be nothing more than the interchange between the blood and the atmosphere of carbonic acid and oxygen (how much the new element, argon, has to do with it is still a question to be thought out). But, although this is the simple formula to which analysis of the process conducts us, we shall be led into important errors if we see in it the whole of the process. It is the *physical fact* upon which the vital process depends, but it is not the vital function itself. This interchange is effected by every tissue, even when separated from the organism. They all absorb oxygen in its diluted and compound state, and exhale carbonic acid. A fragment of muscle, so long as it retains its irritability, is found to absorb oxygen from the air and to exhale carbonic acid; but we do not call such interchange respiration, because respiration is something more than a mere exchange of gases; it is an animal function, which, although dependent on the physical laws of gaseous interchange, derives its special character from the organism in which it is effected. In the course of an inquiry we shall have occasion to observe how the neglect of the distinction now insisted on between respiration as the function of an apparatus of organs, and respiration as the mere interchange of gases, determined by physical laws, has led to error; for the present, it is enough to have drawn attention to the true physiological conception. In the higher animals we see this function performed by two different organs—gills and lungs. In both organs we find that a large quantity of blood is exposed to the air by means of a network of vessels spread over the surface. The blood arrives there black and passes away scarlet. It has exchanged some of its carbonic acid for some of the oxygen of the air; it has become changed from venous into arterial blood. This oxygenation of the blood is, therefore, the special office of respiration; and although all animals exhale carbonic acid and absorb oxygen—although every tissue does so—yet we must vigorously limit the idea of respiration, as an animal function, to that which takes place in the gills or lungs. True it is, that the simple animals effect such exhalation and absorption by their *general surface*, and not by any *special modification of it*, such as gills or lungs; true it is, that even fish and reptiles, furnished with gills, also respire by their skin, and that when the lungs of a frog are removed, the necessary oxygenation of the blood may be effected through the skin if the temperature be low; nay, it is also true, that even man himself, in a slight degree, respires by the skin, one-fiftieth to one-fortieth part of the entire function, so that the tracing spreads the gradual complication of the organic apparatus, and finding *first*, the whole of the general surface effecting the aeration needed; secondly, a part of the surface formed into a gill, in which aeration is far more active; and, finally, finding this gill replaced by a lung, we may be tempted to say: "If the aeration of the blood is the office of respiration, and if this is effected in some animals by the skin alone, in others by the skin and the gills, and in others principally by the lungs, but still

* In the following works will be found most of the facts cited or alluded to in this exposition: Spallanzani: Memoirs sur la Respiration; Edwards: De l'Influence des Agens Physiques sur la Vie: Claude Bernard: Le cons sur les Effects des Substances Toxiques; Milne Edwards: Le cons sur la Phys. et l'Anat. Comp. Lehman's Physiologische Chamie, and the Treatises on Physiology of Berard, Muller, Funke, Draper, etc.

in a slight degree also by the skin, how can it be pretended to establish a distinction, other than by a simple distinction of degree? How can it be expected to lay much stress on a verbal difference such as that between function and general property or tissue?"

In reply to this plausible objection we must observe that in science verbal distinctions are often extremely important; they keep attention alive to real though subtle distinctions. It is difficult to keep such distinctions, for, as Bacon says, "words are generally framed and applied according to the conception of the vulgar, and draw lines of separation according to such differences as the vulgar can follow; and when a more acute intellect, or a more diligent observation tries to introduce a better distinction, words rebel." In strict physiological language, no animal without blood ought to be said to breathe, for respiration in such animals is not effected by a special apparatus of breathing organs; and in physiology the idea of function is inseparably connected with that of organ, as the act is with its agent. Professor Berard says that, penetrated with the idea of a special organ being necessary for respiration, he experienced a singular disappointment in reading the experiments of Spallanzani, which proved that every tissue of the body absorbed oxygen and gave out carbonic acid; and he "only recovered his contentment on perceiving that the essence of respiration consisted in this interchange of gases, so that, whatever nutritive fluid was in contact with the atmosphere, respiration must take place." Here the Professor seems to have made an oversight, confounding the general with the particular as completely as if a savage visiting a civilized country and observing the transport of men and goods by railways, and "penetrated with the idea of a special method of transit being necessary," were afterwards to observe that vans, carts and wheelbarrows also conveyed goods, from which he would conclude that the essence of transport bring the removal of goods from one place to another, every means of transport must be a railway. The interchange of gases, like the transport of goods, may be effected by various means, but we only call the one respiration when it is effected by gills or lungs, and the other railway transit when it is effected by railways. Professor Berard was right in conceiving that a special organ was necessary for respiration; and his error arose from confounding the action of the organ with the result of that action. Respiration effects the interchange of gases and the aeration of the blood, by means of a peculiar organic apparatus, without which the due aeration would not take place in the higher animals. In the simpler animals this apparatus is not needed, because the nutritive fluid, being easily accessible, requires no function to bring it into contact with the air; but no sooner does the organism become so complex that a direct aeration of the nutritive fluid ceases to be possible, than an apparatus is constructed, the function of which is to effect this aeration. In the gills and lungs we see such an apparatus. Unless distinctions like these are established, Respiration ceases altogether to be a vital process; and every interchange of carbonic acid and and oxygen, no matter where effected, will have an equal claim to be designated as a respiratory act. Therefore, as it is of the first importance in all physiological inquiries to keep constantly in view the part played by the organism in modifying physical laws, the philosophic reader will see at once that any verbal distinction which aids us in this must be of advantage. We should, perhaps, do well to indicate the special distinctions by using phrases such as "pulmonary respiration," "bronchial respiration" and "cutaneous respiration," for the various classes of animals.

If now we ask, What is respiration? the answer will be this: The function of the lungs or gills by means of which the blood absorbs oxygen, and parts with carbonic acid and some other noxious elements. Oxygen is the great inciter of vital changes; its presence is the indispensable condition of life. It is at once fuel and flame; it feeds and it destroys. Constantly withdrawn from the blood by the ceaseless activities of vital change, it is as constantly drawn into the blood by the process of respiration. If the blood rushing through our lungs does not meet there with a supply

of oxygen, the torrent carries venous in lieu of arterial blood to the tissues, and the consequence is an arrest of all the vital changes. If in passing through the lungs the blood only meets with a small supply of oxygen, an imperfectly arterialized fluid is carried to the tissues, and a partial arrest takes place, which is seen in the diminished vigor of the organism. All the functions are depressed; and if this depression continues death arrives.

An organism and a medium—these are the two factors in the sum; yet, strangely enough, in trying to solve the problem of respiration, men have principally directed their attention to one factor, the medium, forgetting the equally important influence of the organism. What is the medium? It is an atmospheric ocean 45 miles in depth, whirling with our planet while that planet whirls around the sun, subject to incessant fluctuations, yet always preserving the same composition. This atmosphere is chiefly composed of a mechanical mixture of two gases—oxygen, which forms about one-fifth, and nitrogen, which forms nearly the remaining four-fifths. To these must be added $\frac{4}{10000}$ of carbonic acid, with a small quantity of ozone and a definite amount of argon—which is not yet known—and traces of ammonia, etc. Such being the medium, let us now glance at the organism. Here there is nothing constant; not only are all animals different, and, consequently, their action on the atmosphere is different, but the same organism varies at different periods. As a general fact, the action of the animal organism may be succinctly stated to be the absorption of oxygen from the atmosphere, and the exhalation of carbonic acid into it. It matters not whether the animal lives in air or in water—the respiratory medium is always the air, for water, deprived of its air, or its due proportion of oxygen, is as fatal to marine as to terrestrial animals. It matters not by what organ or surface the respiratory exchange takes place, it is always a twofold act of exhalation of carbonic acid on the one hand, and of absorption of oxygen on the other. The variety of respiratory organs is great. In the Mollusks we find some kinds having no "organs" at all; some kinds having gills; others having lungs, and one kind (Oncidium) having both gills and lungs. In the Crustacea we find rudimentary gills. In spiders there are both gills and lungs. Fish have only gills. Frogs and salamanders begin with gills, which disappear and give place to lungs. Reptiles, birds and mammals have lungs of different degree of complexity. Cutaneous respiration is effected when the air, either in the water or as atmospheric air, comes in contact with the moist skin in which the blood is circulating. Gill respiration is effected in a similar way; the water rushing over the delicate surface, parts with oxygen, and takes up carbonic acid. In pulmonary respiration the air is no longer outside, but inside, the organ; it is drawn in from the atmosphere; the exchange is effected in the organ, and the altered air is then driven out, to be replaced by fresh air.

To understand the mechanism of pulmonary respirations, let us commence with an examination of the newt (Triton), which presents us with the simplest form of the lung, and will, therefore, best enable us to understand the more complex forms. On opening the chest of this newt, recently caught from a neighboring pond, we observe two elongated air sacs of thin membrane; these are the lungs. We remove one sac and find an artery with its ramifications rushing down one side, and a vein running up the other. Into this sac the air enters by the windpipe; when there, it is in contact with the delicate blood vessels lying in the membraneous wall; the exchange of gases takes place and the vitiated air is expelled by a contraction of the abdominal muscles; as you may see by observing the live animal in a glass vessel. The reptile's lung is thus an air sac, on the surface of which blood vessels are distributed; and, if we now examine the lung of a man, we shall find that, in spite of its apparently different structure, it is a little more than an almost endless repetition, on a smaller scale, of this very air sac. The windpipe, instead of simply dividing into two branches, each branch terminated by a large air sac, divides and subdivides like the branches and twigs of a tree; these tubes are called the *bronchial tubes*: each tubelet terminates in a cell, forming, as

Kölliker justly says, the miniature representation of a reptile's lung. The lung of a man is thus an aggregation of bronchial tubelets and air sacs; these air cells are very minute, sometimes the two-hundredths of an inch, occasionally the seventieth of an inch. Between these air cells run the capillary blood vessels. Thus each side of a blood vessel is exposed to the air contained within a call, and the gases pass to and fro the delicate wall of the cells, and through the walls of the capillaries with perfect facility. So crowded are the blood vessels that the diameter of the meshes formed by their network, is less than the three thousandths of an inch, and the number of air cells is calculated at not less than 600,000,000.

With this brief description of the organ, let us pass on to the function.

[TO BE CONTINUED.]

COMMUNICATIONS.

HOW TO DIAGNOSTICATE SEXUAL DERANGEMENTS IN THE MALE.*

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It has been my endeavor for some time past to impress on the profession the fact that, in the majority of instances, sexual derangements in the male are caused by pathological processes located in or about the seminal vesicles, and, further, that such pathological processes accomplish their results by interfering with the active function of the seminal vesicles, namely: the mechanism of ejaculation. This side of the question—which is, in fact, the most important side, since it represents a majority of the cases—is the only one which has so far received but little attention, while psychological conditions in which sexual derangements exist only as symptoms, have been so thoroughly and extensively written up that most practitioners instinctively think of the mind as the seat of trouble whenever consulted by an individual of this class. It is true that mental symptoms exist in most instances wherein also there are sexual derangements of long standing, but usually these mental symptoms are secondary to and dependent on disease located in the seminal vesicles, rather than on a primary mental dyscrasia. Thus it is that many a patient is seen suffering really from seminal vesicular disease, who, as a result of visiting doctor after doctor, has been discouraged rather than benefited by being told he was a crank, a hypo-chondriac, or that his sexual functions were all right if he could only induce himself so to believe, while at the same time drugs destined to quiet the mental state have been unavailingly prescribed.

Sexual derangements in the male should be diagnostically arranged in four classes:

(1) Those dependent on seminal vesiculitis.
(2) Those dependent on neuroses.
(3) Those dependent on primary mental disease or degeneration.
(4) Those dependent on general malnutrition and debility.

The order of this classification corresponds to the frequency with which these different forms of disease are encountered in practice.

In explanation of the first class of causes I will here say little, since the subject has been so fully considered in my book, just published ("Disorders of the Male Sexual Organs," Lea Brothers & Co., Philadelphia, 1895). Other than that where seminal vesiculitis exists, one usually obtains from the history of the case an account of previous urethral or

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bladder inflammations, sexual abuses or excesses and the like, all of which are agents tending to produce localized inflammation. This class also is the only one which presents tangible physical signs; for in seminal vesiculitis the practiced finger inserted in the rectum can positively diagnosticate the disease from the indications presented to the sense of touch.

The second class of causes, namely, neuroses, commonly occasion what we are accustomed to designate as functional impotence. In such cases the sexual organs, which are in themselves in a state of health, are more or less constantly inhibited in their action by some reflex nervous cause. Rarely, instead of being inhibited by the remote cause, the sexual center may be excited and occasionally the periods of inhibition and excitement may alternate with more or less regularity. This condition is often seen in young men whom fear of contagion or bashfulness makes temporarily impotent. Aversion, dislike, or conscientious scruples may also effect the same result. Occasionally a wife's aversion or dislike of sexual intercourse may so react on the husband that he becomes impotent as regards her. Numerous cases have been recorded where stricture, varicocele, adherent prepuce, spinal inflammation or irritation, and various other conditions have acted as causes to inhibit the sexual center. It is in highly nervous states, best classed as male hysteria, that one is apt to encounter alternating conditions of inhibition and excitement.

The third class of causes properly belongs to the alienist. Under this heading are grouped the different forms and grades of paranoia, in which mental degenerations the sexual sense or desire exists in a perverted state. Natural forms of sexual gratification appeal but little, if at all, to those so affected, and with some of them coitus is impossible. Still, with such individuals there is no apparent loss of sexual strength and force whenever the special agents capable of exciting the sexual passions happen to exert their influence. In this mental class also belong idiots and feeble-minded individuals, who get all the sexual gratification they are capable of experiencing from masturbation, and in whom the opposite sex is incapable of arousing any erotic sensations.

The fourth class of causes is a small one, and is perhaps not deserving of a separate classification. Still, I have encountered cases, illustrated histories of which I have recorded in my book, which cannot well be grouped under the other three headings, and consequently I have made this fourth division. Individuals of this class are young or middle-aged. They make complaint that they are capable of little sexual exertion, and that feelings of prostration and exhaustion result whenever they attempt coitus. Examination shows the seminal vesicles to be normal. It also shows a weak circulation, perhaps from some congenital defect, deficient lung expansion, malnutrition generally, and defective intestinal assimilation. In fact, the sexual organs are found to be no weaker than the other organs, and whatever weakness they may have is evidently dependent on defective action in connection with the vital centers.

We now come directly to the clinical consideration. When an individual presents himself with a sexual complaint, he should first of all be allowed to state in his own words, as concisely as it is possible to make him, exactly what his troublesome symptoms are, how long he has had them, and what seems to aggravate or relieve them. His own idea also as to the origin of his complaint should be stated. The consultant should then ask a systematically arranged series of questions. These questions should be grouped according to the classification of causes which we have already enumerated. The first set of questions should accordingly seek to reveal whether any of the conditions had previously existed which are known to favor the production of seminal vesiculitis. With this end in view, he should be asked if he had ever had gonorrhea, how often he had had it, and what sort of a course it had generally run; also, whether he had ever had swoolen testicles. If he had had urethral treatment, he should be made to state its exact nature, together with the effect it may have had on his sexual disorders. His previous sexual habits should be inquired into in order to see whether they had been excessive or abusive; also

whether it had been customary to tease, as it were, the sexual center by exciting it unduly without subsequent natural relief. Questions relative to the existence of a phthisical tendency should then be asked, since it is not at all uncommon for such inflammatory processes to locate themselves in the seminal vesicles.

The next group of questions should be directed chiefly toward the nervous and mental status, the aim of the examiner being to discover whether the sexual desires, sensations, habits, etc., have been normal and natural. The general nervous condition of the patient should be inquired into, including his occupation and mode of life. The attempt should be made to discover whether there are other nervous phenomena or symptoms, aside from sexual ones, which have attracted attention or which have been a cause for complaint.

Then, lastly, the general health and vigor of the complainant should be investigated. He should be asked how much exercise he can take without exhaustion, and whether the state of his digestion is satisfactory.

After this questioning, it is probable that an examiner of experience might in the majority of instances be able to correctly diagnosticate a given case. Still, as yet a trial has not been made of the most important agent at our command for the settlement of the diagnosis, namely; the digital feel of the seminal vesicles per rectum. When so employed, the educated finger can detect not only the existence of seminal vesiculitis, but also the extent and in large measure the grade of the disease. If the presence of seminal vesiculitis has been determined by these means, then it is safe to assume, in case no marked mental sexual perversions have been found, that the sexual disorders complained of are dependent on the pathological condition of the seminal vesicles. If, however, marked perversions coexist, then it may be that the perversions, by reason of the excesses attendant on them, have caused the inflammation of the vesicles; but this is not always the case, as the writer has in mind an instance where the irritation caused by the seminal vesiculitis created a sexual perversion. Where such a complication seems to exist the only way to settle the question whether the mental sexual perversion is primary or secondary to the seminal vesiculitis is to effect a cure of the seminal vesiculitis. Then the sexual perversion, if it is a primary condition, will remain unaffected; otherwise it will of course disappear.

If the digital rectal feel shows the seminal vesicles to be normal, then the first and chief group of causes is eliminated, the three last being left. The next step for the examiner to take is to differentiate the second and fourth classification of causes from the third. This is usually not a difficult matter. If the mental faculties are found to be developed, and if there are no evidences of mental degeneration, such as is customary to include under paranoia, then the derangements complained of should be ascribed to some neurotic condition, or, possibly, to general malnutrition or debility. If mental disease or degeneration is found to exist, the sexual disorder should be ascribed to the mental condition.

It is hardly necessary to say anything regarding the differential diagnosis between the second and fourth class of causes other than that, if the patient shows marked evidences of malnutrition, together with a poor circulation, defective lung expansion, etc., it is safer to ascribe his sexual weakness to a general weakness, which pertains to his sexual, in common with his other, organs, rather than to some neurotic condition.

If a case of sexual disorder is found to be due to some neurotic cause, then often-times considerable observation and study may be required before the medical attendant can determine just what the factor is which inhibits or excites the sexual nerve center. It is all-important, however, that this should be discovered, in order that remedial measures may be taken.

In conclusion, it may be well to devote some special remarks to the feel per rectum of the seminal vesicles. The patient to be examined, as I have already described, should stand with his legs straight and with his body bent forward at right angles to the direction of his legs. A forefinger of the operator, well lubricated, should then be inserted into the rectum, while counter pressure is exerted by the other hand against the

hypogastrium in order to bring the parts well into the reach of the tip of the forefinger. This manipulation is often made less difficult if the bladder of the patient be fairly distended. The conditions presented to the feel by the varying pathological states of the seminal vesicles are widely different. Thus, in the light grades of inflammation, the sacs may feel soft and distended, their walls being but slightly thickened. In more severe grades the walls appear thick, rigid, and inelastic; while in cases where the inflammatory process has been very severe, the surrounding loose fibrous tissues are invaded by a hard, infiltrating edema, which eventually becomes organized by connective-tissue proliferation. In these latter instances the vesicle appears to the feel as a hard lump, at times approaching in size a goose-egg. In case both vesicles are involved by such extensive perivesicular inflammation, then these two exudations may meet in the median line back of the prostate, thus filling in the whole post-prostatic connective-tissue space. Cases of this description always deceive a novice or a careless examiner, who diagnose them as hypertrophy or inflammation of the prostate.

A marked tenderness is always excited when pressure with the finger tip is exerted over an acutely inflamed seminal vesicle, but as the vesicles are also often very tender to the touch in many chronic conditions, tenderness cannot of itself be significant of an acute process. In acute seminal vesiculitis, besides finding the part very tender, the sense of touch should reveal a soft, boggy swelling, possessed of an increased amount of heat, and which in most instances can be felt to pulsate.

If, now, in a case of seminal vesiculitis, the finger tip, after reaching as far as possible into the rectum, is bent downward and then drawn slowly out along the line of the body of the seminal vesicle and its ejaculatory duct, more or less of the inflammatory contents of the sac is liable to be pressed out of the opening of the ejaculatory duct and into the deep urethra. The urine voided after this manipulation will contain the expressed material. This is my mode of stripping the seminal vesicle. Although it is of use in establishing a diagnosis by verifying, as it were, the sense of touch, still its chief value lies, as I have demonstrated, in its curative properties. Sometimes, especially on the occasion of a first stripping, it will be found that very little or nothing is expressed from a seminal vesicle which the touch shows to be extensively inflamed. This is often the case where the sac is embedded in a mass of schlerous perivesiculitis, which causes the walls of the seminal vesicle to remain rigid as the finger tip passes over them. In cases of this description, however, after the perivesicular thickening has gradually been absorbed and softened as the result of a series of strippings, then much pathological secretion can be expressed from the sac after each manipulation.

I have said earlier in this article that it is the educated finger which can detect disease located in the seminal vesicles. To become perfected in this rectal feel, the finger needs as much practice as does that of the gynecologist in feeling the ovaries and tubes. To give the finger the necessary practice and education, the genito-urinary surgeon should make it customary to examine in this manner every male case coming into his clinic, until all normal and pathological conditions can be fully appreciated.

Contra-Indicated During Pregnancy.

(*Journal American Medical Association*) Huguenin mentions as chief of the remedies which are dangerous to the pregnant woman, salicylate of soda and ergot. Purgatives—castor oil, mineral salts and especially aloes—should be avoided. Oxalic acid and its salts—oxalate of potash, etc.—may prove dangerous. Antipyrin frequently taken inhabits the lacteal secretion; cocain locally applied for fissured nipples has the same effect, and should be proscribed for nursing women. As to operative measures, they are not absolutely contra-indicated; we may, for example, extirpate a peri-uterine tumor, the development of which hinders pregnancy, provided the operation is speedy and little blood lost. Operations in the vagina or uterus, no matter how minor, should be avoided in order to avoid suspicions of abortion in the patient's mind.

ACTION OF CHLOROFORM IN PARTURITION.*

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The profession has come to regard the use of chloroform in parturition as almost utterly devoid of danger, and it is this opinion based upon substantial facts that has given rise to its universal and careless, even reckless administration in labor. Why chloroform acts differently in the parturient and pregnant female from the non-pregnant person, or why it is comparatively harmless in the pregnant and is attended with a certain degree of danger in the non-pregnant is a question not devoid of interest or importance. To be enabled to determine what there is in the physiology of pregnancy that protects the woman against the dangers of chloroform would be to ascertain and establish a fact in the therapusis of chloroform that would shed an infinite amount of light on its therapeutic action not only in labor, but from a surgical point of view.

During the process of pregnancy there are two systems which undergo manifest changes of a developmental order These are the vasomotor and circulatory systems.

The developmental changes in these two systems are of a phenomenal character. The muscular structure of the left ventricle takes on increased nutrition and growth, that it may have increased force and power to meet the new emergencies of circulation and nutrition. A new being is to be nourished, developed, formed, and shaped in all its parts, and to do this a new force is to be created. The heart of the pregnant female not only acquires additional force, but the great vasomotor and sympathetic systems, with their ganglia and nerves take on new energy, more vigorous action and power to maintain that complex circulation of both mother, the placenta and fetus. Just in proportion as the growth of the placenta and fetus increase, these developmental changes in the circulatory vasomotor system advance. Otherwise the pregnant woman would utterly fail to sustain her own strength and health, and at the same time nourish the placenta and fetus. Hence her vasomotor system and circulation reach a state of development in point of vigor, energy and power rarely attained in any human constitution.

Under these circumstances, arterial tension and blood pressure more than redoubled are indicated in the strong, vigorous, bounding and frequent pulse of the pregnant woman, which is familiar to all practical obstetricians. Such a state of arterial tension and blood pressure would be regarded in the non-pregnant as indicating a dangerous degree of plethora and congestive tendency. But in the pregnant woman we know there is a safety valve, a diverticulum for this increased circulatory force and volume found in the placental and fetal circulations.

Among the most interesting developmental processes of pregnancy is leucocytosis, a purely regenerative and restorative process. This seems to be the foundation upon which is constructed all other developmental functions of the vasomotor and circulatory systems, to enable them to bear the new duties and superadded labors of the emergencies of pregnancy and parturition. To what extent the immunity of the parturient female from the toxic action of chloroform is due to the restorative and sustaining process of leucocytosis can not be determined at present.

The process of pregnancy, the evolution and growth of the fetus require that every energy of the maternal system shall be bent singly to the accomplishment of those objects.

That the therapeutic action of chloroform in the parturient female differs widely from that in the non-pregnant person, there is abundant evidence to prove. We know that in surgical practice, chloroform anesthesia is attended with a certain proportion of mortality that renders extreme caution necessary, while a death or even unpleasant result in labor is a very rare occurrence from that cause.

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In the obstetrical practice of the civilized world, the most careful researches have only brought to light a very small number of cases of death in the millions of instances where chloroform is resorted to.

We may safely say that in the practice of the world there are twenty cases of parturition in which chloroform is resorted to, to one of surgery, and yet there is not the one-hundredth part of cases of mortality in the former as the latter. I do not think that this is an exaggerated statement. The most careful investigation has failed to find more than forty deaths from chloroform in labor, in the practice of the world, from the time that this anesthetic was brought into use to the present time. Some high authorities place the number at only three deaths. This is, I think, a wonderful exhibition, particularly when we take into consideration the careless, unscientific, reckless manner in which it is given during labor.

And not only this, but its often prolonged use during protracted labors. I have seen it given in protracted labors every half hour for twelve, and in certain cases for twenty-four hours, where there were not only no evil results, but labor terminated naturally and favorably. I have seen in cases of obstetrical operations the patient kept in a profound state of chloroform anesthesia for two and three hours without the least indication of collapse of the circulation or suspension of respiration.

In a long experience in the use of chloroform, extending over a period of nearly forty pears, I have yet to see my first case of the least evil result to mother or child. Yet I am opposed to its reckless and careless use in parturition and for fear that there might be an evil result, believe that the same scientific principles and careful method of giving it should guide us as in general surgery.

According to these statements, and I am convinced that they are sustained by the experience of the profession, pregnancy, particularly during the stage of parturition, does in a large degree render the woman immune from the evil effects of chloroform. This having been established as a fact in its therapeusis, it remains to be determined what is there in the state of pregnancy or parturition that gives the parturient patient this immunity.

The extraordinary development of the vasomotor and circulatory systems in the pregnant woman has been alluded to, with its wonderful arterial tension and high blood pressure. The pulse even of the most delicate pregnant woman is often as hard, full and strong as the most robust man. In a paper read last November before the Southern Surgical and Gynecological Association, on the action of chloroform on the exposed human brain, I showed very conclusively that the anesthetic action of chloroform on that organ was invariably to produce anemia of its circulation, reduction of arterial tension and diminution of blood pressure, so that always under full anesthesia the brain becomes anemic to a degree that in extreme cases there is an enormous and dangerous reduction of circulation preceding general collapse. I am therefore constrained to believe that in this wonderful development of force, strength and power of the pregnant woman in her vasomotor system lies her immunity from the toxic action of chloroform. Every degree acquired of additional strength in the vasomotor system gives her increased immunity. It is this newly acquired force of the vasomotor system of the pregnant woman which enables her to resist the toxic action of chloroform to an extraordinary extent, which prevents extreme depression of arterial tension, and consequently excessive and dangerous anemia of the brain and spinal cord.

In the cases alluded to, of extensive injury of the cranium and the brain in which, while chloroform was being used, I had a perfect ocular demonstration of its action on the functions of the brain during its administration of three or four times in each case, reduction of arterial tension, blood pressure and vasomotor force in the arteries invariably preceded a state of anemia of the brain, and this extreme anemia of the brain, suspension of pulsation and hemorrhage always preceded tendency to general collapse.

These facts, I think, indicate to us very clearly that in chloroform anesthesia, anemia of the brain to an extreme

degree always precedes dangerous chloroform narcosis and collapse, and, at the same time, that so long as the vasomotor force remains intact in sufficient force to sustain the circulation in the brain and medulla, life will be sustained.

In my experiments with chloroform in the cases cited of injury of the brain, there were two occasions in one, and one occasion in the other, on which there was alarming collapse, with almost entire suspension of respiration and cardiac action. Preceding these symptoms in every instance there was marked reduction of vasomotor force, arterial tension and blood pressure, and diminution of cardiac power. In all my experience in the use of chloroform in parturition, I have never witnessed this extreme reduction of cardiac and vasomotor force, no matter to what extent the agent was pushed, that I have in general surgery.

The primary action of chloroform is on the cortex of the brain, the seat of consciousness and sensation. For the relief of the pains of parturition, all we have to do is to bring the cortex under a state of anesthesia, without extending its influence so far as to involve the reflex functions of the cord. This is equally true of anesthesia of general surgery. By watching the action of the remedy we are enabled to confine its influence to the cortex without infringing on the functions of the cord or vasomotor system. This is all that is desired to relieve pain and to render the act of labor more comfortable and easy for our patient. On the contrary, if we desire to relax excessive rigidity of the soft parts, or in case of convulsive action, to control that, we must extend our anesthetic influence further, and bring under its power the reflex functions of the cord itself. So long as we confine our anesthetic to the cortex alone we cannot accomplish these objects. But immediately the cord is brought under its influence, complete muscular relaxation follows.

We will now consider the question of anesthesia in its practical bearing and influence on the process of parturition.

Is the use of chloroform in parturition justifiable for the relief of pain alone?

This is the first question that presents itself for our consideration. I believe that it is, but not in every case. For instance, there are cases where the pains are slight, the conditions all favorable, the passages spacious, the labor rapid, in which it is unnecessary. But in every case where the labor is at all slow, painful, and not easy, I believe that it is not only justifiable, but that it would be inhuman to withhold it. This statement is based upon the fact that the mortality from chloroform anesthesia in labor is so very small, not probably amounting to one in millions, we certainly can risk so little for so much good.

I know that there are those who oppose its use to parturition *in toto*, but I believe without good and just reasons.

Pain is the great terror to parturition and if it could be robbed of this feature alone it would be converted into a very simple and easy process. For some years before I adopted anesthesia in my obstetrical practice, I have time and again sat by the bedside of women in the throes of parturition and listened often with anguish to myself, to their cries for relief from pain, heard their moanings from almost insufferable agony, for hours of such scenes that impressed themselves upon my memory in a manner never to be forgotten. With chloroform at hand, and with my familiarity with its action, I never have to pass through such painful scenes now. I have tried in past years many substitutes for chloroform to relieve the pain of parturition, but have never found one yet. I am convinced that it is *the anesthetic* of all others peculiarly appropriate to the parturient state. It is clean in its action, does not cause congestion of either the brain, the lungs or kidneys, but markedly diminishes the tendency to congestion of the brain.

Does the action of chloroform facilitate the process of parturition?

I believe that, as a rule, it does. I am convinced that in a great majority of cases it does shorten the duration of parturition. I know that it is the opinion of some that its action is to reduce the strength of uterine contraction and in this way retard the process of parturition. It has been my experience that while it relieves pain, its use may be so graduated as to not impair uterine con-

traction. Acting on the cortex of the brain alone and on the reflex functions of the cord are two different things. Thus we can abolish sensation without affecting reflex action. I believe that with care and judgment we can confine the action of chloroform to the cortex alone, the seat of sensation, and leave intact the reflex functions and the contractive force of the uterus.

I have no statistics to guide me in this matter, but my personal experience in the administration of chloroform in parturition leads me to believe that it not only makes labor easier, but that in the average it shortens the duration of that process. If then, it is capable of rendering labor easier, more bearable to the patient, and can shorten its duration one hour, or even thirty minutes, its application is justifiable when we consider the very small risk incurred in giving it. In certain conditions I know that it can shorten the duration of labor. These conditions are rigidity of the soft parts, and irregular contraction of the uterine muscular fibers or spasmodic contraction of certain sets of fibres and relaxation of other sets; a condition that may protract labor indefinitely. The spasmodic contraction of certain muscular fibers of the uterus and relaxation of others is not an unfrequent state during protracted labor, and is a similar condition to that which produces the hour-glass contraction after labor. Chloroform is capable of equalizing uterine contraction and of preventing irregular spasmodic contraction, and in this way facilitating parturition.

Its well-known power to overcome and relax muscular rigidity no one can doubt. In illustration of this fact, I have repeatedly in my experience seen cases attended with rigidity of the soft parts where the process of labor was stationary, it might be for an hour or more, or even hours, but when chloroform was given in such quantities as to produce muscular relaxation, the labor would progress rapidly toward a termination.

At what stages of parturition is chloroform applicable?

To relieve excessive pain it is applicable at any stage. But to induce relaxation of muscular rigidity it is applicable in unusual rigidity of the os uteri, and in extreme rigidity of the perineum when the fetal head begins to press on that body. When the object of giving chloroform is to relieve pain only, it should be given in small quantities at the beginning of each pain and left off when the pain ceases. But when we desire to overcome muscular rigidity the patient must be subjected fully to its influence. In the case of extreme contraction of the os uteri, or great rigidity of the tissues of the pelvic floor, no half way procedure will accomplish anything. The patient then must be brought sufficiently under its influence to at least partially suspend reflex action when complete muscular relaxation follows, just as we would do in reducing a dislocation.

When there is perfect accommodation between uterine force and muscular relaxation in a normal pelvis, labor proceeds rapidly, easily and successfully. On the contrary, when this accommodation is disturbed, when, for instance, uterine contractile force is feeble, and perineal muscular tension is excessive, labor proceeds slowly and painfully. The action of chloroform in this class of cases is to bring this accommodation between uterine force and pelvic resistance to a more normal standard by reducing muscular tension. Leaving out of question congenital defects, or those caused by disease in the pelvic bones, the vast majority of tedious and difficult labor will be found to be due to rigidity of the muscular structures of the pelvis, or inefficiency of uterine contraction. We often see these conditions existing together. Nineteen out of twenty cases of instrumental delivery, in my personal experience, have been due to excessive muscular rigidity of perineum. In these particular cases the action of chloroform has been to cause perineal relaxation, to reduce muscular resistance, to bring about accommodation between force and resistance without materially impairing that force on the part of the uterus.

Does chloroform tend to suspend uterine contraction?

There can be no doubt that chloroform may be given in labor in a manner either to relieve pain and to leave uterine contractile force intact, or to both suppress pain and uterine rhythmic contraction so as to suspend parturition for a time.

Rhythmic uterine contraction is an essentially reflex function and we know that the different nervous functions come under the influence of chloroform in consecutive order—sensation first, then reflex action and finally vasomotor action. Because of this fact we can, as a rule, relieve the pains of labor without impairing the force of uterine contraction. All practical obstetricians have observed in patients in labor when under chloroform, entire relief from pain while, at the same time, the rhythmic contractions of the uterus, and all the symptoms of active tenesmus were in full operation. I believe that this is the ideal state of chloroform anesthesia, in labor, and I am convinced that it may be so administered always as to relieve pain and leave the reflex functions unimpaired. Again, I believe that the reflex functions of the parturient patient are far more resistant to the toxic action of chloroform than in ordinary cases, and that it is more difficult to suspend them. This fact gives us a decided advantage in giving chloroform in labor; simply to relieve pain without interrupting the progress of parturition.

In my experience it has been seen that when the uterine contractions have been for the time suspended by the too free use of chloroform, when this influence subsided, uterine contractile force returned with renewed and additional vigor to perform the work to be accomplished. Also there have been occasions in tedious cases of labor, when the pains were irregular and insufficient in character, causing much needless suffering to the patient, that when the patient was placed under full chloroform narcosis for a time and was made to enjoy a prolonged sleep, the pains were renewed with vigor and force sufficient to terminate the labor.

Does the action of chloroform tend to promote or prevent post-partum hemorrhage?

This constitutes one of the most important questions connected with the therapeutic action of chloroform in parturition. If it tends to promote hemorrhage then this fact increases the dangers of its use in this condition. From my personal experience I can say this much relative to this question. Many times after its administration in parturition, when pushed to the extent of causing entire unconsciousness at the time of birth, in not a single case have I observed a greater tendency to hemorrhage or any greater difficulty in producing firm uterine contraction than when it was not used.

So far as this question is concerned, I can speak alone from personal experience, and any personal experience in a large number of cases extending over a long term of years, is of some value in settling important questions. High authority on the action of chloroform on the circulation is that it is a vaso-motor contractor. In my surgical practice its action on the vessels rather tended to establish this view. Profound chloroform anesthesia certainly does diminish surgical hemorrhage. In my cases of injury of the skull and brain, under chloroform anesthesia there was a marked diminution of cerebral hemorrhage in every instance. Then if it be true that chloroform is a vasomotor contractor, this, it appears to me, would decide this important question.

Does the action of chloroform in parturition tend to prevent or promote laceration of the os uteri or perineum?

Are lacerations more common under the present method of delivery under anesthesia, or under the old system of delivery without anesthetics? I have no reliable statistical data bearing on this subject to guide me, but I will state here that I have practiced under both the old system and the new, and am enabled to state positively that all of the bad cases of laceration of os uteri and perineum have occurred in cases where chloroform was not given. Many of the worst cases of laceration of these organs occurred in cases of rapid birth before my arrival. I am decidedly of opinion that thorough relaxation of the structures of the pelvic floor constitutes the best security against injuries of this kind, and I know of no agent that is as capable of producing that extreme relaxation of muscular tissue as chloroform, and therefore placing the patient in a condition most favorable for the prevention of lacerations.

I will briefly cite the case of Mrs. T., a young married woman who had an accidental abortion at five month of pregnancy. I was called to her about eight

hours after and found her with a retained placenta. The perineum was intensely rigid and the ostium vaginæ closely contracted. The vagina was narrow and the os uteri was rigidly contracted on a protruding umbilical cord. I determined to place the patient thoroughly under the influence of chloroform, with the hope that it would produce sufficient relaxation of the soft parts to enable me to insert the fingers into the uterus and remove the retained placenta. While the patient was under the influence, to my surprise I found complete relaxation of the perineum, vagina and of uteri. These tissues were in such an extremely flaccid condition that I was enabled with perfect ease to pass my hand, not only into the vagina, but into the uterus, which was as equally flaccid, grasp the placenta, detatch it from its adhesions and remove it safely. Without the influence of chloroform this operation could not have been performed. During my past professional life I have had occasion to test all the various methods proposed by different authorities for the prevention of laceration of the perineum. I have found them more or less defective, some entirely unworthy. For some years past the method which I have adopted with the most satisfaction was to retract the perineum, with the fingers hooked into the vagina, back toward the rectum forcibly at each pain, so as to maintain a continuous relaxing influence of the perineum until the fetal head presses on that body. When it reaches that stage then the perineum will have been very generally relaxed. At this point the patient is kept under the influence of the anesthtic until the head begins to protrude from the vulva, when it is suspended. In my hands this mechanical dilatation of the perineum, combined with the relaxing influence of the anesthetic has been the means of preventing more lacerations than any other method that I have tried up to this this time.

In conclusion, I can truly say that after a long and favorable experience in the use of chloroform in parturition, that I have found it not only a blessing to the patient but to the physician also. Without the means of relieving human suffering what a dreary, unsatisfactory and repulsive life that of the physician would be. Yet for ages and ages the lot of the woman in the throes of parturition was to suffer, to bear, and submit to its terrible tortures, hopeless of relief until the end came.

For the past half century the achievements of medical science in the discovery and perfection of remedies to relieve human suffering, to improve human health, and prolong human life, have astounded the civilized world and are a source of pride to our profession. And one of the greatest of all of these achievements is the discovery of chloroform.

Endometritis.

Winckel (*Wiener med. Woch.*, No. 27, 1895), discussed this disease at the June meeting of the German Gynecological Congress. Simple uterine catarrh usually results from distinct venous congestion. It frequently arises from this cause during infancy from improper clothing, especially tight bandaging of the body. Catarrh may also arise in childhood from want of cleanliness, irritation of the vulva and entrance of worms into the vagina. Anæmia and other diseases of the blood cause catarrh in childhood. In adult life the causes of the same disease are innumerable. After bad burns, hemorrhagic endometritis is frequent. In acute infectious diseases this disease may arise either from entrance of the specific germ into the endometrium or from irritation of that membrane due to chemical products evolved by the germ. Endometritis decidualis polyposa results from retained relics of decidua after abortion and premature labor. In endometritis exfoliativa there is never any infiltration, as has been asserted. Between the shedding of one membrane and the development of the next there may not be the least trace of any discharge. Tuberculous endometritis is rare, the tube being more commonly the seat of tuberculous disease when it attacks the female genitals. Gonorrheal endometritis is very frequent, and Winckel contends that the gonococcus travels not only along the endometrium to the tubes, but also through the uterine wall to the peritoneum. Recent literature records no instance of true diphtheritic endometritis.

THE RADICAL CURE OF HERNIA BY THE INTRA-PELVIC METHOD.*

CHARLES A. L. READ, A.M., M.D., CINCINNATI.

A year ago I presented the various steps of an intra-pelvic method of operating for the cure of, more particularly, inguinal and femoral hernia. In view of the fact that the profession had for a long time practically abandoned all elective operations for hernia, I consider the cordial letters and earnest inquiries which I have received from, practically, every State in the Union and from Europe as an indication that not only surgeons, but general practitioners, are ready to consider an operation the essential features of which embrace the removal of the cause of hernia, and the restoration of the canal, with its contained and neighboring structures, to their normal position and powers of resistance. It is my intention to discuss this procedure in detail, and to depart from the conventional form of an essay and present a series of replies to interrogatories which may, with but little license, be formulated from letters which I have received upon the subject. I also incorporate a paragraph or two relative to the same principle applied to the cure of certain forms of ventral and umbilical hernia.

In what essential particulars does this intra-pelvic method differ from the several methods of radical operation now in vogue?

It differs, in the first instance, in the fact that it is intra-pelvic, while the others—Bassini's, Halstead's McBurney's Macewen's—are extra-pelvic. This becomes apparent when it is remembered that the intra-pelvic method embraces the following essential steps (*e. g.* in inguinal hernia), viz.: An incision through the skin and superficial fascia coincident with the axis of the tumor, from a point an inch below the external ring to a point two inches above the internal ring. The portion of the incision below the external ring is now carried down to the hernial sac. The portion of the incision above the internal ring is now carried through the abdominal wall, peritoneum and all. The sac, if adherent, is now dissected loose, its contents reduced, and the sac itself invaginated upon the finger and returned into the pelvic cavity. It is now drawn out of the abdominal incision and bisected laterally and the flaps separated. The cord, now thoroughly exposed within the pelvis, is placed in the outer angle of the internal ring, the anterior and posterior pillars of which are now stitched together by interrupted sutures of either tendon or chromacised cat-gut. The peritoneal flaps, formed by the bisection of the sac, are rolled together and are stitched by interrupted sutures into a protective pad, the natural position of which is directly over the internal ring. The cord is now placed at the inner angle of the external ring, the anterior and posterior pillars of which are now stitched together by interrupted sutures of tendon or chromacised catgut. This done, the incision is to be closed by a laminated animal suture. This method of closure may be restricted to the peritoneum and to the fasciæ of the transversalis and oblique, but with these structures it is essential. The external incision—*i. e.*, through the skin, fat, and superficial fascia — may be closed in any manner suitable to the operator.

The Bassini operation contemplates the restoration of the posterior wall of the canal. "The spermatic cord is made to traverse the abdominal wall at a higher level than before, so that it no longer emerges at the old hernial aperature, which can be completely closed. To carry out this operation, the aponeurosis of the external oblique over the inguinal canal must be freely divided."†

It is obvious that the essential points of difference between my operation and that of Bassini—and there is really no serious occasion for considering any other—consists in (*a*) leaving undisturbed the extremely tense fascia comprising the anterior wall of the ring; (*b*)

* Read before the Mississippi Valley Medical Association, 1895.

† Transactions American Association of Obstetricians and Gynecologists, 1894.

in leaving the cord in the position which nature designed for it, and entirely protected by the normal fascia; (*c*) in closing the internal ring on the inside of the pelvis, and in protecting it by a strong peritoneal pad; (*d*) in avoiding the menace to virility arising from a transplantation of the cord, its possible constriction by an artificial ring of tense fascia, and its necessary investment by an inflammatory exudate; (*e*) in increasing the resistance of the parts by fortifying the fascia comprising the anterior wall of the ring, and by increasing and making permanent the obliquity of the cord within its normal canal.

It is the absence of these features that, to my mind, comprises the characteristics of the Bassini operation, which, in the hands of such skillful operators as Coley, has yielded the best results of any extra-pelvic operation now in vogue.

I concur with Macready when he says, relative to the division of the aponeurosis of the external oblique over the inguinal canal—a destructive point in the Bassini operation—that it may be well to consider whether such a step is advisable: "The majority of operators preserve the tendon intact. The justification for dividing it is that thereby the highest point of the neck of the sac can be reached, and no peritoneal recess is left to form a rupture. On the other hand, the power of the inguinal canal to recover itself, when the viscera are kept for a time reduced, is well recognized, and it is open to question whether the wall of the canal formed of normal tissue is not more resistant than one traversed by a scar. Again, after the operation for strangulation, where it has been necessary to cut up the aponeurosis to the external oblique, I have observed that the abdominal wall at that point is generally weak and disposed to bulge, which is not, as a rule, the case when the aponeurosis has been spared."

What cases are suitable for operation?

For ease of operation, the large herniæ occurring in adults are the more desirable, although permanent cures are realized more uniformly in younger subjects. The element of age, except extremely advanced life, ought not to be taken into account, as it cannot be said to exercise a determining influence upon results. In case of strangulation, other conditions being equal, the radical operation should be done without delay in subjects of any age. There is no humanity involved in permitting any patient, however old, to die of strangulated hernia without the benefit of the possibilities of surgery. Coley has operated with success in infants of eight months, while my friend Dr. Robert O'Callighan, of London, has reported several successes among patients in the eighth decade of life. Cases which have been damaged by the long wearing of a truss—and the truss that does not speedily close a hernial ring always enlarges it—are less desirable for operation than those in which a truss has never been worn. The most difficult cases, however, are those in which adhesions of the omentum or of the intestine have been induced, either within the ring itself or low down in the pelvis, by the always unsurgical and strictly fool-hardy treatment by the injection of irritating fluids for the ostensible purpose of cure.

When ought the operation to be done?

In view of the possibilities of strangulation occurring at any time, the earlier an operation for inguinal or femoral hernia is done the better. A typical instance of the proper course of procedure in these cases came under my observation but recently, while visiting the surgical clinic of Professor Kocher, at Berne. A boy, apparently about seventeen or eighteen, was brought into the clinic crying. He had been at work, when he suddenly felt a severe pain in the right inguinal hernia. The usual symptoms of strangulation, except that there had been no vomiting, were present. Examination revealed a hernial tumor, which was manipulated with extreme care, for fear that it might inadvertently be reduced by the ordinary diagnostic manipulations. As soon as the character of the case had been determined the lad was sent to the ward for preparatory ablutions, and within a half-hour he was upon the operating-table. Somewhat to the chagrin of the distinguished operator, the hernia had become reduced, and he was thus deprived of the conspicuous landmarks of which he had hoped to avail himself.

A dextrous and skillful operation—one with which Kocher's name is identified—was done, the patient being off the table in sixteen minutes after it was begun. Why was this an ideal course of treatment? It relieved the lad's present trouble, it saved him from the possibility of subsequent strangulation, it saved him from a prolonged career of invalidism, and enabled him to speedily resume his avocation, all by means of an operation which, under the circumstances, was free from danger.

Violent taxis and long-continued efforts to reduce hernia have killed more people than almost any other procedure that has been erroneously preached under the respectable mantle of conservatism. In non-strangulated cases, the bowels being normally open and there being no complicating diseased conditions present to prevent, I operate upon my cases whenever they will submit. I feel that in this connection I cannot do better than quote from Bennett* what ought to be accepted as an axiom, viz.: "It may be safely held as a surgical doctrine that every case of hernia in which any change has taken place in the condition of the tumor, such, for example, as increase of size or tension, whilst expansile impulse is absent, should be regarded as strangulated hernia and treated accordingly, without waiting for vomiting or other signs of intestinal obstruction."

What are the dangers of the operation?

I know no better way to answer this question than by quoting M. Lucas-Championniere, who says that "it is not an operation for every one, that it is harmless in the hands of a trained surgeon, but disastrous under opposite conditions." I am also impressed that it is not only important that the operation be done by a skilled surgeon, but that it be done under the most surgical conditions and surroundings. It ought not, if possible, to be done in the patient's own home, where it is extremely difficult to secure aseptic surroundings and proper nursing. Even when a trained nurse is employed it frequently happens that the incidental conditions of domestic life elude her vigilance, and negative her efforts and skill. The operation ought, therefore, in all elective cases, be done under those strictly aseptic conditions which can be secured only in a hospital. If this is not done suppuration is liable to ensue. There are no cases in which suppuration is more completely destructive of satisfactory results than in these. Every precaution ought, therefore, to be taken to avoid it. In my own work I have not failed to have primary union in a single case during the last two years—the period during which I have been doing the intra-pelvic operation.

The mortality ought to be practically the same in all of the operations. I have had no death in my own work. Although I attach but little importance to surgical statistics, it is interesting to note that Macready reports Richelot 140 cases, Bishop 199, Macewen 52, each without a death; Bassini 216 and Erdman 106, each with one death. Coley reports a beautiful series of 200 cases and but one death, which occurred from an intercurrent pneumonia, and ought not, therefore, to be considered. This gives published records of 913 cases with but two deaths. I have not the particulars of these deaths, but they doubtless occurred from accidental causes. It must be remembered that these are all records of able surgeons, who operate under the most favorable of circumstances, and who do strictly aseptic work. Macready states, however, that "at three of the large London hospitals of late years the death-rate has been seven per cent." This must be attributable to the fact that the cases occurred at "large general hospitals," where it would seem to be practically impossible to secure either aseptic surroundings, or, it would seem, an aseptic surgeon. There is certainly nothing in the operation that should account for such results.

What after-treatment is required?

First and foremost, let me urge that no truss be used. The effect of a truss that will exert any pressure will be to reopen the wound, or at least to separate the united subcutaneous structures and further weaken the parts by inducing atrophy from pressure, Of course, a truss that will exert no pressure can only be a nuisance. The patient should remain perfectly quiet for at least three weeks after the operation, the surgical features of which are over in five or six

* "Lectures on Hernia," London, 1893, p. 9.

days. The bowels should be kept open for several weeks, and care should be taken to avoid straining at stool for at least several months. The same precaution should be observed with regard to lifting and walking.

What are the probabilities of the return of the rupture?

With the improved methods of operation now in vogue the results realized promise to be of a more permanent character. Coley has had no returns in seventy-six cases of more than one year's standing. I have had no returns in any case operated upon by the intra-pelvic method since I first adopted it, two years ago. In one case, referred to me by Dr. J. C. Culbertson a year ago, I did a second operation three months after the first for development of a rupture which had developed on the other side, a circumstance which could have no relation to the first operation. It is, perhaps, too soon to speak with positiveness, but I have great confidence in the permanency of results following the intra-pelvic operation.

In what manner can the principles of this operation be applied to the cure of ventral and umbilical hernia.

If we recognize the removal of the underlying or causative condition and the restoration of the normal resistant power of the involved tissues as the fundamental principles of the operation which I have been describing, we can at once apply them to the cure of ventral and umbilical hernia. Take, for instance, an illustrative case in which both conditions existed:

A very stout lady, aged about forty, and the mother of a large family, was referred to me three years ago by my friend Dr. Ashburn, of Batavia, O. She had a very large umbilical hernia, quite as large as a man's two fists, and in addition to that she had a very large ventral hernia in the median abdominal line, extending from the umbilicus to the pubis. I operated upon this case by making two semilunar incisions from a point two inches above the umbilical tumor to within an inch of the pubis. These incisions, the ends of which united at the points indicated, outlined a large ellipse of tissue, in which was imbedded the sac of the umbilical hernia. The incisions were carried down to the superficial fascia and the skin and fat was dissected off up to the hernial sac. This was now opened and the large mass of adherent hypertrophied omentum was removed by ligature and excision. An extruded loop of intestine, which was also adherent, was liberated and returned. The umbilical ring was now split, converting it into two lateral broad-surfaced flaps, which were stitched together. The recti muscles were now observed to be quite six inches apart—the essential underlying pathological condition in all cases of hernia in the median abdominal. The object of an operation is to approximate the median margins of these muscles and anchor them. To do this I ran two lines of in-and-out continous sutures in the superficial fascia. The first line infolded about an inch and half of the attenuated abdominal wall. The second line was now directly above the other, and infolded about as much more. The recti muscles had thus been drawn toward the median line until they were not more than an inch apart, each beneath its aponeurotic investment. The superficial fascia and the aponeurosis of the external oblique were now incised on each side coincidentally with the muscle until the margins of the recti were exposed. Interrupted sutures were now passed through the superficial fascia, the aponeurosis of the external oblique and the inner margin of the muscle on each side. These sutures, when tied, anchhored the recti in the median line, and by bringing the superficial aponeurotic margins together gave the muscles a proper investment. Interrupted sutures of silkworm-gut were now used to approximate the skin and the thick layer of fat.

A number of other illustrative cases could be adduced, in none of which has recurrence taken place.

The advantages in this operation consist in (1) securing by the infolding of the redundant but attenuated median fascia the formation of a column which when consolidated by inflammatory adhesions, has a certain retentive and supportive power, the influence of which is of value in preventing recurrence. (2 the anchorage of the recti in the median line restores the retentive power of the wall.

I feel that a general survey of the question of hernia, and an impartial estimate of the various operations now performed for its radical cure, justify the following conclusions, viz.:

1. Hernia is the cause of invalidism and a constant menace to life, with a tendency to grow worse if left to itself.

2. The truss cures a limited number of cases, and furnishes a useful temporary support to certain others, but is the cause of damaging change in structure in all persons who wear it for a long time. I have never operated for strangulated hernia except in a truss-wearing patient.

3. The so-called treatment by injection is unscientific, unsurgical and dangerous, and its results are permanent only in their disastrous features.

4. The best time for operation is when the patient is in good general health, and at the earliest date consistent with his or her convenience. The element of age ought not, as a rule, to be taken into account.

5. Each of the various modern operations—Bassini's, Marcy's Macewen's and Kocher's—have valuable features, and some of them splendid records, while all are better than procedures which preced them.

6. I am partial to the intra-pelvic method for the following reasons, viz.: (1) It is safe, both to the generative function and to life; (2) it places all possible complications under the control of the operator; (3) the convalescence is short and comparatively painless; (4) the recoveries have been uniform; (5) the results have been, and promise to continue to be, permanent.

CORRESPONDENCE.

COLD TREATMENT FOR HYPERPYREXIA.

Mr. Editor:—In the Medical and Surgical Reporter of September 14, I find an interesting letter from Dr. W. D. Abernethy, of Pulaski, Tenn., on the subject of typhoid fever. He says that he does not think that the cold water (or ice?) treatment for hyperpyrexia can be "carried out in private practice."

I agree with the Doctor that antipyretics should scarcely ever be used, but the ice pack can be used very conveniently in practice.

This is my plan, which I used with great success a month or six weeks ago. I spread a rubber cloth over the entire bed: if you can not get rubber cloth, use oil cloth table cover, anything to keep the mattress from being wet. The patient is then rolled over to one side of the bed, and a sheet or blanket, according to circumstances, is folded once the long way, wrung out of a tub of cold, hot or ice water, and laid along side of the patient, who is then gently rolled over upon the wet sheet. The sheet is then tucked around from chin to knees, arms too if necessary, and with a sprinkler or pitcher, the sheet or blanket is kept cold with ice water, or as I did recently, small blocks of ice were rubbed on the outside of the sheet until they melted away. In the case I refer to, the temperature evinced a desire to stay above 105° F. and sponging did no good at all. The ice packs were used every two, three or four hours, as was necessary, and no quinine or other medicine was used to reduce the temperature. If the patient objects to the cold sheet touching them, which they may do, have the sheet wrung out of hot or warm water, and then apply the ice water or lumps gradually, until the necessary amount of cold is produced. The patient referred to above was a boy, athletic, of about 18 years, and he liked to feel the cold. The only other treatment was support of heart with strychnia and morphia, and some mineral acid and two or three doses of turpentine, as indicated. The greatest attention was paid to the reduction of temperature and nourishment. Very little alcohol was used. Six weeks illness, two hemorrhages, and good and rapid recovery.

Jno. W. Corbett, M.D.
Camden, S. C.

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PHILADELPHIA, SATURDAY, OCTOBER 12, 1895.

EDITORIAL.

FOR HIGHER MEDICAL EDUCATION.

The past week witnessed the reopening of the three great medical schools of Philadelphia, the Medical Department, University of Pennsylvania, Jefferson, and the Medico-Chirurgical. In all three institutions the entering classes are the largest in their respective histories. While the increased number of students indicates prosperity, more auspicious is the fact that the increase occurs in colleges which are notably leaders in the movement toward higher medical education, and the elevation of the standard of requirements for admission to the profession.

In this connection there is much significance in some of the introductory remarks of Provost Harrison, of the University of Pennsylvania. Among other things he said:—

"In my position as a servant, not only of the University as a whole, but of each department and school in the University, there are, I confess, two or three matters at the opening of this new year to which I feel it my duty to call your attention. The first of these is the great importance, as it seems to me, that every one who choses for himself a professional career, should be a well-educated man. The signs of the times all point to very rigid admission requirements in the early future to all those who mark out for themselves such responsible positions. It is well that it is so. The simple question is, Is it right that a man should be allowed to go into medicine, or law, or dentistry, or any other profession, without having enjoyed a good preliminary education—without being in the first instance a well educated man, with a capacity to think for himself—as well as special technical training? Surely the professions demand a broader and deeper preparation than is now commonly accorded them.

"I believe that within a very few years the men who go out from the professional schools of our great universities—the men with whom you will have to compete in life and in your profession—are going to be well-educated men; that both entrance and exit of the professional school will be much more care-

fully guarded in the future than they have been in the past at this and at other universities.

"I do not say these things by way of discouragement; I say them by way of exhortation and warning. To any of you who are lacking in the preparation of which I have spoken, there is a chance to make up, partially at least, what is wanting by time properly spent.

"What is the historic reason why medical and other kindred schools are now so thronged? Is it not that the 'Cura et regimen animarum' has ceased to be the sole subject of solicitude on the part of mankind? The body, the vehicle of the soul—life here fuller and in greater measure—this men have come to place side by side with the great subject which years ago formed almost the sole object of earnest study."

In the course of the opening address at Jefferson, Dr. John H. Brinton introduced the latest advances at that institution in a very happy manner. He said:—

"Phases of newness are but kaleidoscopic changes marking a mental activity shared now by the many, formerly possessed by the few. Dissatisfaction with what we have, the old, and a craving for what we have not, the new, is a feeling coeval with man. We all feel that of late the comforts and capabilities of life have been wonderfully bettered by the discoveries and inventions which have followed each other in increasing rapidity. The life of two decades since would simply be unlivable to-day. The arts and sciences have gone forward with measured tread, and in the general advance medicine has more than kept even pace. She is in the front. In every direction her boundaries have been widened by new discoveries and fresh developments in her component and subordinate branches. Especially has renewed activity marked investigations in pathology, and recent results have rewarded such research, results not vague or theoretical, but practical in their bearing and of direct application.

"The domain of medicine has thus been greatly enlarged and the consequent wants of the student and responsibilities of his teachers have been proportionately augmented. An increase in the number and especially in the scope of his studies has made necessary a lengthened course. In our college this was at first advanced from two to three years, but experience has shown that even this period is too short. An intellectual digestion rather than an intellectual cram must be obtained. Therefore it has been decided to add a fourth year to the college curriculum. To carry this change into effect we are now met and it becomes my pleasing duty in the name of the trustees and faculty to welcome you all on this opening night of another era, the inauguration of a 'New Jefferson College.'"

Dr. William E. Hughes, in inaugurating the new year at the Medico-Chirurgical College, remarked:—

"The multiplication of educational institutions in this country often inures to their disadvantage as actual disseminators of knowledge. By dividing their forces they are crippled, and as a result no one does perfect work. In medicine it is in a sense different. The theory must ever go hand in hand with its practical application; so that the value of a teaching institution to the students depends largely upon the opportunity which these students enjoy of seeing applied the principles which have been expounded to them, and learning in the seeing that these principles are not mere idle theories, but facts which when practically employed lead to practical results. Herein lies the true essence of successful medical teaching, and in this is bound up our excuse for being and the reason for our success."

ABSTRACTS.

WHEN MAY GONORRHEAL PATIENTS BE ALLOWED TO MARRY?

Valentine,. in a paper read at the Medico-Legal Congress, September 6, 1895, (*Amer. Med. Surg. Bul.*):—As this learned body does not consist exclusively of physicians, a few remarks on gonorrhea may appropriately preface this paper. Gonorrhea being among the most frequent of diseases, its disagreeable, painful characteristics need no description. Yet, despite that frequency, its possible consequences to the patients and to others are underrated. This is due to that familiarity with its manifestations which seems to have bred contempt for the results. All have heard of the man who was as little troubled by a clap as he would be by a common cold. None have ever seen him, save in those rare instances in which, at the time of making the assertion, he was not suffering from the disease. The very frequency of clap has caused it to be considered a proper, or, rather, improper, and therefore more delectable, subject of humor. The same sentiment prompted the French to masquerade and dance when cholera raged. Who does not remember the little couplet, born of that Galgenhumor:

> Il existent des familles entières,
> Qui sont mortes du cholera.

So clap is laughed at; but there is bitter wit in the hyperbole that offers a keg of nails to chew as a palliative for the pain produced on urinating.

The "issue from the flesh," as it is spoken of in church literature, is as old as the history of man. It results from impure relations between the sexes. Neisser, in 1872, discovered that it depends upon a characteristic microbe which he named, most unhappily, the gonococcus. In fresh attacks it produces the well-known discharge, whose normal term of duration, if fortunately treated, was, until recently, six weeks. Under the present form of treatment, originated by Prof. Jules Janet, of Paris, its average duration is now below ten days. The possible complications of the disease, under the older treatments, need not now be discussed, for they affect only the patient himself. But what if he communicate the disease to others?

Noeggerath, of New York, fully thirty years ago sounded the first note of alarm in this connection. On purely clinical grounds he attributed a vast proportion of death-dealing diseases in women to gonorrhea, which the husbands had had years before. Noeggerath's assumption has been more than borne out by recent science. A supposititious case may be recited here, covering a multitude of actual ones, seen daily.

A man contracts gonorrhea. After a time all discharge and other evidences of the disease disappear. His physician dismisses him as completely cured. Five, ten, or more years later he has almost, if not entirely, dropped from his mind this, with other disagreeable, recollections. He marries a healthy, strong girl. The young wife soon begins to fade. Vague pains set in. If her friends love her, she will be twitted with congratulations and advice regarding the presumed coming maternity. Her form, too, suggests such possibility. But by the time when, or before, the child that is to make her still more loved by her husband is expected, it is found necessary to seek professional advice.

A cyst of the ovary, a fallopian tube filled with pus or some other dangerous disease, is discovered. An operation, perilous to life, must be performed to save her. If she survive, she will no longer be a woman, for she cannot become a mother. The light of modern microscopy, brought to bear upon the tumor, cyst, tube, or other substance removed, shows gonococci. Remember that this wreck, which, but a few short months ago was a vigorous, healthy woman, was "as chaste as ice, as pure as snow." Remember, too, that her husband presented no sensory evidence of the disease that killed his cherished wife. Killed—the word is advisedly

employed—for, though she live, she is worse than dead; she is not only unsexed, but also physically destroyed.

There are many other consequences of gonorrhea which cannot be cited now, lest they swell this paper beyond its proper dimensions. It will suffice, as a mere example, to recall German statistics, which show that, of the children who become hopelessly blind shortly after birth, over eighty per cent. have sightless globes owing to gonorrheal ophthalmia.

Should, therefore, all men who have had gonorrhea be condemned to celibacy? How many, then, could marry? It would not be overhazardous to say that not one man in a thousand who swears to cherish and guard the woman of his choice, can do so without imperiling her life.

It might strike many at once that something forcible should be done to protect innocent women. The suggestion of legislative enactments looms up as a remedy. A moment's thought will make clear how any legislation in this direction must prove futile.

The remedy lies in education. The most ignorant can be taught that clap is a dangerous disease. It is perfectly true that, under the influence of ordinary injections, secret medicines, much advertised preparations, cases of apparent clap have recovered in as short a time as three days. The microscope would have revealed that these discharges were not clap at all. If left utterly without treatment, they would have stopped in half the time or less. But it cannot be repeated too often: Clap is a dangerous disease! Aside from the many complications and consequences which it may bring to the persons affected, it can make the patient hopelessly blind in twenty-four hours. These facts alone, of a multitude of others equally alarming, which affect the patient's self-love, being duly impressed upon his mind, we may go a step further.

A disappearance of all external evidence of the disease by no means makes the ex-patient unable to cause his wife's death. Lurking in the crypts, follicles, and glands of his urethra may be gonococci. In the sexual relation these murderous bacteria are wholly or partially emptied out. Enough of them may be projected to pass with the semen to the regions where a future human being should be given life, and the prospective mother then has within her the fungus of destruction. Is there no way, then, by which it can be determined whether a man is free from infective possibility? Indeed, this paper would fail of its purpose if there were none.

Modern means of exploration come to our aid. The urethroscope, by means of which every part of the urethra can be distinctly seen, will oftentimes show glands, crypts, or follicles in an unhealthy state. This frequently occurs in cases which presented no external evidence of disease for years. The contents of these glands, crypts, or follicles, being expressed and examined microscopically, will reveal the presence or absence of gonococci. If gonococci be present, the patient must not marry until they are made to disappear absolutely and entirely. It is proper to say here that the above described exploration and examination are entirely painless.

Cases will present in which the foci of infection are either so minute or so nearly covered by mucous membrane that they are not at all visible. In such cases the urethra may appear almost healthy, and yet contain perhaps even infinitesimally small glands filled with gonococci.

An irritant injection will produce a flow lasting from twelve to forty-eight hours. This flow, examined, will or will not be found to contain gonococci. If it contains gonococci, it will have so irritated their source, or sources, as to bring them to sight by means of the urethroscope. Through the same instrument they can be destroyed and the patient rendered innocuous. If, however, the discharge produced by the irritant injection contains no gonococci, a second such injection should be made a week later. This will certainly reveal gonococci, if they be present anywhere in that urethra. If none is found, the physician may safely advise marriage, as far as possibility of infecting the wife is concerned. This whole procedure is practically painless, and does not disable the applicant from his occupation. But, even were it associated with frightful agony, and did it work great business disturbance, it would be better that the man suffer a while than that he cause his wife's death, or worse than death. Of course, if gon-

ococci be found, the patient must be cured before he may marry.

To detail the treatment of gonorrhea, acute or chronic, would be out of place here. A discussion of the modern methods, by which many of the most severe cases can be cut short effectively and harmlessly, belongs to bodies of exclusively medical men. The significance of threads, flakes, granules, etc., in otherwise healthy, clear urine, equally must be judged by those who examine it. Nor are we concerned just now with the possible and probable effects directly upon the male patient. We may, however, briefly sum up in the following propositions, as regards gonorrhea and marriage:

1. Gonorrhea, per se, is a dangerous disease, but curable at any stage;
2. Even when all external evidences of its existence have disappeared, the patient may still be able to infect;
3. A woman infected with gonorrhea is in danger of her life;
4. No man should marry who can infect his wife;
5. In a week or ten days' time it can be determined whether a man can infect or not.

In view of the above it is manifestly the duty of every layman and physician to disseminate, as far as lies in his power, the knowledge that will save many a life. Physicians, in the exercise of their priesthood, are continually working against their own interests, by teaching the prevention of disease. Thus they fulfill their highest mission. The educated laity, many of whom are attending this Congress for the benefit of humanity, should aid our profession in this work.

It certainly is meet and proper to devise means for the protection of innocent babes. Is it not equally proper that innocent girls who marry to bear children to the man they love, be protected? Their protection lies in educating men to abstain from marriage while they can infect. Every such marriage prevented, will protect a woman from death, or, what is far worse, a life of mental and physical torture.

ŒDEMA AND PROLAPSE OF CERVIX IN PREGNANCY AND LABOR.

Geyl (*Volkmann's kln. Vorträge*, No. 128, May, 1895) describes a second case of this rare condition seen in his own practice. Five have already been collected by Guéniot, the discoverer of the disorder in question, and one by Misrachi, and thus eight cases complete thd series. Geyl makes use of the formidable name "œdema acutum cervicis uteri gravidi parturientis seu puerperalis intermittens," which also forms the title of this monograph. In Geyl's last case he first saw the patient in February 19th, 1894. She was in the seventh month of pregnancy, and complained that a body frequently protruded from the vulva and went up again. A sanious mucus discharge ran from it as long as it was down. A year previously Geyl had used the curette for endometritis. He had opportunities of examining the prolapsed body. It was a cylindrical structure, $2\frac{1}{2}$ inches long outside the vulva cleft, ending in a blunt extremity nearly 2 inches wide. It pitted on pressure of the finger, the depression disappearing directly the finger was removed. On careful exploration it was found to be the anterior lip of the cervix. The chief examination was made on March 24th, when labor pains were suspected. After rest, with elevation of the pelvis, the swelling disappeared. It came down again daily before labor. On the night of April 7th precipitate labor occurred, the child being delivered after four pains only, when the patient had been one hour in bed; the placenta soon followed. Geyl arrived when all was over; the uterus was perfectly normal. Ten days later the anterior lip of the cervix felt simply a little larger than the posterior. As reduction is usually spontaneous, and as this case shows that labor is but little affected, œdema of the anterior lip is hardly a dangerous complication of pregnancy.

COMMUNICATION.

THE PRESENT STATUS OF LINEAR CRANIECTOMY*

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Craniectomy was first performed in 1878 by Dr. Fuller, of Montreal, upon a child for the relief of idiocy, with the object in view of allowing the expansion of the brain.

There is no record of the operation being performed again until 1890, when Prof. Lannelongue, of Paris, undertook it with the same object in view. He afterward operated upon twenty-four other cases. The following is an abstract of his report made before the French Surgical Congress, March 31, 1893:

"The operative results," he says, "have been as follows: twenty-five operations, twenty-four recoveries; the average duration has been ten days. One death eight hours after the operation. My youngest patient was eight months of age; my oldest twelve years and a half. I have operated upon thirteen boys and twelve girls.

"What shall I say as to the final results? For while it is encouraging to have nothing but recoveries to report, we should not forget the real object of the operation.

"My cases have been watched over with all the solicitude possible, and I am now in possession of documents which permit me to say that the large majority of them have been manifestly benefited. But as most of these operatious are comparatively recent, I shall content myself at present with informing my confreres that I shall publish the results obtained in detail."

This report was made four years ago, and since then Prof. Lannelongue has maintained a significant silence.

This operation was speedily taken up by other surgeons, especially in England and America. In June, 1893, Dr. Bourneville, of Paris, wrote a very able paper upon this subject for "*Le Progres Medical*," based upon the reports of eighty-three cases. To this paper I am largely indebted for the facts brought out in this article. With few exceptions, these reports are lacking in exact information as to the moral, intellectual, and physical condition of the patients before the operation. Very often an improvement is claimed, but nothing is said as to the nature of this improvement.

Lannelongue proposed by craniectomy to give full scope to the brain, by weakening the resistance of the skull. This resistance, according to the surgeons who practice this operation, is caused by premature ossification of the sutures in microcephalus. Under the latter term they seek to unite the different forms of idiocy. The lesions described, such as hydrocephalus, sclerosis, etc., says Lannelongue, "are coincident with premature synostosis." Is this opinion supported by pathological anatomy? Even if it be admitted that premature synostosis occurs in idiots, this by no means demonstrates the necessity for craniectomy.

It is necessary to discover what are the lesions causing idiocy before we can estimate the probable effect of craniectomy. The following is Bourneville's classification of idiocy:

1. Idiocy symptomatic of hydrocephalus, or hydrocephalic idiocy.
2. Idiocy symptomatic of microcephalus, or microcephalic idiocy.
3. Idiocy due to arrested development of the convolutions.
4. Idiocy due to a congenital malformation of the brain, as in true porencephaly and absence of the corpus callosum, or to a pathological malformation, such as pseudo-cysts, pseudo-porencephaly, etc.
5. Idiocy due to hypertrophic sclerosis.
6. Idiocy due to atrophic sclerosis.

* Read before the Louisville Academy of Medicine.

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7. Idiocy due to meningitis or chronic meningo-encephalitis.

8. Idiocy associated with the pachydermatous or myxedematous cachexia, due to absence of the thyroid gland.

9. Idiocy due to tumors of the brain.

With a view to determining the role played by premature synostosis in the production of idiocy, Bourneville held post mortems upon twenty-one idiots. (I have some of the cuts made from photographs of the skulls and brains in these cases. These furnish the most convincing proof that could possibly be given of the absurdity of Lannelongue's claim, that idiocy is always coincident with premature synostosis of the skull.) In only two or three of these cases was there a partial synostosis.

There is very little reason then, a priori, to expect any good results from craniectomy. The causes of idiocy, as laid down by Bourneville, and the pathological findings are all against the operation.

Let us next examine the clinical results obtained. I have tabulated eighty-nine operations. I shall simply give you here the net results.

In these eighty-nine cases, there were sixteen deaths as the result of the operation. In the remaining seventy-three cases the result was practically nil in twenty cases. This leaves fifty-three cases. In four it is simply stated that the patient recovered from the operation. This cuts the number down to forty-nine. In one, the epileptiform, attacks were less frequent. In the remaining forty-eight, a greater or less improvement is claimed, but the degree and character of this improvement are not stated and the details are usually very meagre; so that we must accept these claims cum grano. In most of these cases, moreover, a sufficient length of time had not elapsed since the operation to render it possible to determine the final outcome. It is certainly a very significant fact that hardly any one of these operators has submitted a second report as to the permanent results obtained.

One of the most favorable of these cases is that reported by Dr. B. Joos in the "*Korrespondenzblatt fuer Schweizer Aerzte*" for June, 1893. Dr. Walder, of Winterthuer, operated upon a child of three years and nine months. The parents of the child made the following report: The birth of the child was normal; no insanity or idiocy in the family. The child behaved like a wild animal. Day and night it was extremely restless and kept up a loud noise; it was vicious also, and tried to bite its relatives; it was very uncleanly, and passed its urine and feces in bed and besmeared itself with them.

Present condition: The patient is an idiot. He lies mostly upon his belly, and when put upon his back raises a loud, brutish cry. In spite of his age, he can make no intelligible sound—nothing but inarticulate noises. By the continual raging and screaming, he has brought on a prolapse of the rectum and a rupture. The skull is microcephalic. All the sutures are firmly united.

On Nov. 27, 1891, a linear craniectomy was performed upon the left side, a canal as wide as the index finger being cut out. The afternoon after the operation and the next day the child was strikingly quieter and lay upon its back, which had never been the case before. The improvement continued during the next few months. The patient remained quiet and made signs for the bed-pan. As his power of speech did not improve, Dr. Walder removed a portion of the skull over the speech center. A year and three months after the first operation the improvement was very pronounced. The child learned to speak words, among the first being the name of his nurse. By methodical exercise the patient had been brought to the point of repeating about twenty words of one or more letters and the alphabet. He spoke a few broken sentences.

Even though the idiocy may not have been relieved by the operations, the author concludes, still a great service has been done the boy and his environment. From a being whose whole conduct reminded one of a wild beast, he has been changed into a quiet, docile boy, who can at least be endured in human society. The skull has increased several centimeters in size. It is reasonable to question whether, in this case, the improvement was not due more to the systematic exercises carried out for a year and three months than to the operations.

On April 6, 1893, Dr. Ap. Morgan

Vance operated upon a patient of mine with the following history: No history of syphilis, idiocy, or insanity in either branch of the family. The birth of the child had been normal in every particular. It had progressed in every way until the fourth month, when the anterior fontanelle closed. From that time there had been absolute cessation of mental development. When I saw it, it was two years old. There was inability to maintain the upright posture. No control over the sphincters. It was impossible to attract the child's attention. Its face wore a constant dxpression of pain, due to the combined action of the occipito-frontalis and the orbicularis palpebrarum muscles. It kept up a constant, low whimpering. There were epileptiform attacks, consisting of a severe, general tonic spasm of the muscles, followed by a loud, frightened cry. These attacks sometimes occurred as often as 24 times in a day. The child was extremely restless. The only object which it seemed to recognize was its milk-bottle. Here, then, was a typical case for testing Lannelongue's claims.

On April 6, 1893, Dr. Vance performed linear craniectomy on one side of the head, and June 16 on the other. The immediate effect of the operation was certainly very remarkable and impossible to account for. I saw the child about three hours after the first operation. It was lying upon its back quietly, and when I spoke to it, it looked straight at me for the first time in its life. The child's brother waved a bright-colored toy in front of it, and it followed it with its eyes. The pained expression had disappeared from its face, and there was a much more intelligent look in its eyes. I was not especially optimistic about the operation at the time it was undertaken, so that I am certain that I was not deceived in this. This improvement lasted about a week, and recurred after the second operation. The only permanent effect was a lessening in the number of epileptiform attacks. When we come to boil the whole matter down, we arrive at the following conclusions:

1. Premature synostosis of the cranium does not occur in idiocy.

2. The arrested growth of the skull is due to the arrested development of the brain, and not vice versa.

3. The lesions to which idiocy are due are profound, varied, extensive, and by no means susceptible of relief by craniectomy.

4. The results obtained by operation are slight, doubtful, or nil.

So that over against this operation we must write in letters of fire—*Mene, mene, tekel upharsin.*

Leguminous Alimentation in Disease of Digestion and Nutrition.

Bovet (*Presse Med.*) refers to the apparent connection between richness in albumen, or the nitrogenous elements of plants, and organic phosphorous, these two seeming to run parallel. In the leguminosa they are found in greatest proportion. One consequence of the association of phosphates with albumen (vegetable), and the "diffusibility" of phosphoric acid, is that food of this character (leguminous) is very readily dissolved and digested in the alimentary canal, even in the absence of the usual ferments. The presence of a relatively large amount of potash salts in this food is also noted. In the laboratory of Professor Hayem a dog was fed for thirteen days on an exclusive diet of "legumine," a soup free from salt. The result was first a marked decrease in its weight, amounting to one-tenth. An analysis of the gastric juice, at the beginning and end of the experiment showed a marked increase in two most important values, namely, hydrochloric acid and chlorine. This may be interpreted as increased digestive power. A similar experiment on a patient, aged 42, suffering from chronic gastritis, slight dilatation, and loss of motor power of the stomach, weakness and emaciation, showed results altogether comparable to the above. At the beginning the gastric juice, although highly acid, was free from hydrochloric acid. At the end of two months the total acidity was not increased, while hydrochloric acid was present in almost normal amount. Digestion (previously slow and painful) no longer inconvenienced the patient. Neurasthenia was lessened, and she slept eight hours daily without awaking, something she had not done for a long time previously.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

A Pessimistic View of Electrotherapy

is given by Prof. F. Shultze, director of the Polyclinik, at Bonn University, who for many years was acting electrotherapist for Prof. Erb. He says in a monograph upon the curative action of electricity in affections of the nerves and muscles published by Beymann, of Weisbaden, that the action of electricity has proved itself very limited in these affections, so far as the usually adopted methods are concerned. Especially is this the case in organic destructive condition of the central nervous system. Although these cannot be cured, some of their sequelæ may be more rapidly improved and partly removed.

In the similar affections of the peripheral nerves, a more rapid curative result by means of electricity seems to be not improbable, although not yet proven.

Among the so-called functional diseases of the nervous system certain hysterical symptoms are most favorably influenced, the psychical influence being a prominent factor. Neuralgias and myalgias, and feebleness of organs with smooth muscular fiber may be curable by electricity and in severe neuralgias only exceptionally, and frequently not so readily as by other remedies.

It behooves us, therefore, to draw the line of indications more closely for the application of electricity, than was expected at the time of the rise of electrotherapy. But it cannot be detrimental to speak freely and without prejudice upon the capacity of any remedy. By this means we may be directed to new remedial methods and especially to the investigation of causes of serious diseases instead of at once trusting to a single remedy, which only too often leaves us disappointed.

Treatment of Pneumonia.

G. Ivanoff (Bulgarian *Meditzina*), senior physician to the Lom Hospital, says that he most successfully treats croupous pneumonia by the internal use of camphor with antipyrin (R Camph. pulver 0.5 gramme; antipyrin, 2.0; morph. hydrochlor. 0.02; sacch. q.s. M. f. pulv. One-fourth to be given every one or two hours). In adynamic cases he simultaneously resorts to hypodermic injections of camphor in the dose of from 0.05 to 0.1 g., three or four times a day, for which purpose he employs a fatty solution (0.5 camphor to 0.1 g. olive oil). The writer reports a series of twenty-two cases treated consecutively by this method at the hospital during the period December 10, 1893, to March 25, 1894. All of them were rather severe, but nevertheless every one ended in recovery. The hospital registers for 1889 to December, 1893, show that, previously to the introduction of the treatment, from three to seven patients succumbed to the disease every year, the yearly number of pneumonia cases admitted oscillating between twenty and thirty.

Recovery from Tubercular Meningitis.

The question of recovery in tuberculous meningitis has hitherto been obscured by doubt as to the diagnosis. This was not so in a case reported by Freyhan, who made an exploratory puncture of the spinal canal in the lumbar region. About 60 cubic centimeters of slightly turbid, pale, serous fluid spurted out. In the sediment, pus corpuscles and tubercle bacilli were found. The patient improved rapidly, and, in three weeks after the puncture, was able to rise from bed. Recovery can therefore not be looked on as a reliable sign in distinguishing between various forms of meningitis. Incidentally the case raises the question of the therapeutic value of puncture in meningitis.—*Amer. Jour. Med. Sciences.*

Rupture of the Heart.

A specimen of ruptured heart was presented at the meeting of *Societe Anatomique* by Greffo. It was observed in the service of Chautemesse, by Menetrier. The patient, a woman of 71 years, was in apparent good health, but had a certain excess of adipose. It was suddenly announced to her that her son was very ill. She was immediately taken with choking, with syncope and died. At the autopsy a certain quantity of blood was found effused into the pericardium, and a very neat rupture of the posterior wall of the left ventricle. The valves are healthy. The myocardium does not appear to be altered exteriorly.—*Le Bulletin Medical.*

Neuroses of Childhood.

Dr. B. K. Rachford (*Archives of Pediatrics*), after a careful and prolonged study of the effect of a venous condition of the blood in producing neurotic diseases in children draws the following conclusions:

1. Both arterial anæmia and venous congestion can produce an excitable condition of the nerve centers and may therefore be factors in the production of nervous symptoms.

2. The nervous symptoms resulting from arterial anæmia are very similar to those resulting from venous congestion, and this is because in both conditions there is a venous condition of the blood supplying the nerve centers.

3. Arterial anæmia and venous congestion produce nervous symptoms by producing a malnutrition rather than a simple innutrition of the nerve centers.

4. Arterial anæmia and venous congestion weaken the inhibitory centers, and this results in the discharge of force from reflex centers on comparatively slight excitation.

5. Arterial anæmia and venous congestion make more excitable both the reflex centers in the cord, and the more important reflex centers in the medulla oblongata.

The above outline will be of assistance in explaining many obscure nervous symptoms, and

the following examples may be cited to indicate the important relationship existing between a venous condition of the blood and the neuroses of childhood.

1. The venous condition of the blood resulting from a weak or crippled heart, is at least a partial explanation of the relationship which exists between this condition of the heart and certain neuroses such as chorea, hysteria and general nervous irritability.

2. Rheumatism, scarlet fever, diphtheria and other acute diseases which ofttimes produce a weakened condition of the heart, may in this way be indirect factors of neurotic disease (from what has been said in the previous chapter, it is scarcely necessary here to note that these diseases may also act in another way in producing nervous symptoms).

3. Tuberculosis, chronic intestinal catarrh and other diseases that produce a profound chronic anæmia and resulting malnutrition of the nervous centers may be powerful factors in producing many of the neuroses, such for example as hysteria, incontinence of urine, chorea and spasm.

The Treatment of Vomiting.

The *Province Medicale* publishes an article in which the writer considers the question of the difficulty of controlling various kinds of vomiting.

He recommends the following formulas, the first of which, according to Steffen, is useful in the vomiting of pregnancy: Distilled water, five ounces; tincture of iodine, twelve drops. A tablespoonful of this in half a glass of sweet water is to be taken every two hours. The same author recommends the addition of a few milligrammes of morphine hydrochloride to each spoonful, or an ounce of the distilled water may be replaced by an ounce of cherry-laurel water. The *Centralblatt f. de Gesammte Therapie*, in one of its last numbers, recommends the two following formulas:

1. Chloroform, nine hundred grains; tincture of iodine, a hundred and twelve grains. Five drops of this are to be taken every night in a glass of Seltzer water.

2. Distilled water, three ounces and a quarter; cocaine hydrochloride, half a grain; antipyrine, fifteen grains. A teaspoonful may be taken every half hour.

The following procedure, says the writer, in which three solutions are used, has often been employed successfully:

1. Alcohol, a hundred and fifty grains; menthol, eight grains; tincture of nux vomica, thirty grains.

2. Tincture of iodine, a hundred and fifty grains.

3. Saturated chloroform water, three ounces.

Every half hour, or every fifteen minutes if necessary, the patient should take a dessertspoonful of the chloroform water, which may be diluted with iced Seltzer water, after having added ten drops of the first solution to it. If this is not sufficient two drops of the tincture of iodine may be added to each spoonful. Finally, if it is necessary, from two to three drops of a one-in-fifty solution of morphine or cocaine may be added to these formulas. These two solutions are usually employed for subcutaneous injections. It is well to substitute occasionally for one of these medicaments from two to four drops of the ordinary solution of antipyrine for cutaneous injections, according to the following formula: Antipyrine, seventy-five grains; cocaine hydrochloride, two grains and a half; distilled water, a sufficient quantity to make ten cubic centimeters. If these different medications fail, says the writer, the physician may resort to the following therapeutic measure, which is very simple and has been successfully employed by M. Robin in serious cases: Apply a small blister to the pit of the stomach, also administer a small suppository containing a grain and a half of powdered crude opium and a sufficient quantity of cocoa butter once or twice during the twenty four hours. The vomiting is very often arrested, even if it is the serious vomiting of typhoid fever. Sometimes, also, inhalations of oxygen are useful.—*N. Y. Medical Journal.*

General Infection by the Coli-Bacillus in the Course of Influenza.

Siredey relates the case of a man, æt. 29, who, after suffering for fifteen days from influenza, was admitted with severe general symptoms, including high temperature and very marked albuminuria, the general aspect of the case being such as to suggest that the patient had influenza complicated with enteric fever. There were, however, no rose-spots, diarrhœa, or abdominal distension. After two or three days the signs of uræmia set in, together with an increase in the amount of albumen in the urine. The urine was collected aseptically, and was found to contain a great number of coli-bacilli. Puncture of the spleen furnished a pure cultivation of the same form of organism, and this was likewise found to be present in an effusion in the left side of the chest.

The patient died two days later. There was no lesion of the intestine. Both kidneys were in a condition of intense inflammation, and the left contained white infarcts, in which the bacillus referred to could be again found.—(*Gaz. Méd. de Paris*).

SURGERY.

The Quick Curative Treatment of Gonorrhœa.

Dr. F. A. Lyons, New York, in *Medical Record*, argues that gonorehœa should be aborted. He contends that it is due to the gonococci, and that these should be destroyed as rapidly as possible. His plan is to make the patient urinate. He then injects into the urethra, while the patient is recumbent, with an ordinary conical-shaped soft rubber pointed clap syringe, one drachm of a 4 per cent. solution of nitrate of silver. When the syringe is removed the meatus is compressed for four or five minutes. This operation causes but little pain. When the patient presents himself in twenty-four hours, the discharge is examined carefully for gonococci. If any are found a second injection is given. If none are found, the patient is left till next day. The solution for the second injection should be a 2 per cent. one. If the gonococci have not disappeared by the third injection, it is not well to proceed further, and the treatment should be a symptomatic one. But even where the gonococci did not all disappear, the ultimate course of the disease is greatly shortened.

Metastasis in Bone from Cancer of the Thyroid Gland.

Secondary tumors in cases of cancer of this gland are liable to occur in the lungs and in bones. These secondary growths generally resemble in structure the primary tumor; but, besides typical tumor elements, thyroid glandular tissue is frequently present. This is specially true of adeno carcinomata. Eiselberg relates eight illustrative cases:—(1) Adenoma of thyroid, with colloid degeneration—metastasis in parietal bone; (2) adeno carcinoma of thyroid—metastasis in sternum; (3) adeno-carcinoma—metastasis involving the whole sphenoid bone and the base of the cranium; (4) adeno-carcinoma—metastasis in the parietal eminence; (5) adeno-carcinoma—metastasis in the upper part of the humerus; (6) adeno-carcinoma—metastasis in the lower jaw, the cervical and mediastinal glands, and the lungs; (7) adeno-carcinoma—metastasis in the frontal and occipital bones, the lung and the liver; (8) adeno-carcinoma—metastasis in the cranial bones, the ribs, and the humerus.

In five cases therefore, the bone-metastases were single; in three cases multiple. Pulmonary metastases were diagnosed with certainty in five cases; once there were none; twice they were overlooked. The occurrence of pulmonary metastasis may contra indicate an operation for a single metastasis in bone, for the growth of an osseous metastasis is very slow, and the primary tumor in the thyroid may be so insignificant as to quite escape notice. Eiselberg claims that there are some grounds for believing that a bone metastasis producing colloid material may discharge vicariously the function of the extirpated thyroid gland.—*Deut. Med. Zeit.*

Dr. Welch, the bacteriologist for Johns Hopkins Hospital, has demonstrated that germs will not grow in the immediate vicinity of silver. A sterilized silver wire was introduced into a culture, and while the colonies grew as usual elsewhere, immediately about the wire was free from them. Drs. Halsted and Kelly are making use of this discovery by using silver foil in the dressing of aseptic surgical wounds. The foil is placed immediately in contact with the closed incision in sheets about four inches square, and then the other aseptic dressings are applied.—*College and Clinical Record.*

Treatment of Insomnia in Surgery.

George G. Van Shaick in the *N. Y. Medical Journal* reaches the following conclusions on this subject:

1. Insomnia from whatever cause is an important complication of surgical disorders.

2. Its relief is necessary to the comfort of the patients, improves prognosis and materially assists recovery after operations.

3. Where pain is the chief factor morphine is the only drug that will relieve with certainty.

4. There are many surgical disorders in which insomnia may be relieved by trional; and, finally,

5. Trional is an excellent drug for the purpose, as it acts rapidly and safely, has no inhibitory action upon the secretions, seems to possess a stimulating effect, is well borne by the stomach, is easily absorbed by the rectum and fails to produce unpleasant after-effects.

Van Shaick gives a 15 gr. dose, to be repeated in one hour if necessary, and directs attention to the importance of relieving the insomnia which so many patients suffer for a few days in anticipation of an operation.

A Case of Acute Miliary Carcinosis.

Our acqusintance with cancer is so much restricted to the chronic disease that we are apt to forget that it may be associated with feverish attacks, run a rapid course like an acute disease, and prove fatal with cerebral and other grave symptoms in a week or two. The writer (Megay of Klausenburg) suggests the designation given above, in view of the close resemblance of such cases to acute miliary tuberculosis.

He mentions the case of a woman, aged 54, who was brought into hospital in a state of fever, and died on the following day before any exact diagnosis was arrived at. The autopsy revealed the presence of an old hard scirrhus of the pylorus, but the numerous secondary tumors corresponded in structure to medullary cancer. These were found in the lymph-glands of the neck and abdomen, the serous membrane, and the spleen, liver, and kidneys. Death, therefore, was due not to the primary tumor, but to the numerous metastases, which developed rapidly, and were associated with fever and typhoid symptoms. The cancer-cells were supposed to have reached the blood by penetrating the thin walls of the delicate blood-vessels of the lymphatic glands. Indeed, the writer actually observed a small vessel in a glandular mass in the neck, half filled with epithelium which had grown into it. The same thing may have happened in a number of places. The resemblance, therefore, between this mode of generalization of cancer and acute miliary tuberculosis is very close.—*Deut. Med. Zeit.*

Fistula in Ano.

In doing a radical operation for fistula the following points, according to Dr. J. H. Bacon, should be observed:

1. Never sever the sphincters at more than one place at the same operation, no matter what the complications may be, otherwise incontinence is sure to follow.

2. Unless all the channels are followed up and laid open, the operation will fail of its purpose.

3. Fistula resulting from tubercular abscess must not be operated upon if there is sufficient tissue destruction of lung to produce hectic, fever, sweats, etc., unless the fistula is causing severe painful spasms of the sphincters, then it should be divided at any stage.

4. After laying the fistula tract open, the wound must be made to heal from the bottom, and as the cutaneous or mucous side of the wound is better nourished it will throw out a more healthy granulation, that tends to bridge over and close the slower granular surface at the bottom, thus leaving a fistula remaining.

5. When the fistulous tract is not too complicated it should be dissected out entire and the wound brought together, beginning at the bottom with continuous catgut sutures and approximating the surfaces in successive layers until the whole wound is closed.—*Northw. Med. Jour.*

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ORIGINAL ARTICLES.

DEAF MUTES: CAN THEY BE MADE TO HEAR?*

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I present the history of six cases of deaf mutes on whose ears the massage treatment has been used, and will from the study of these cases endeavor to draw a few conclusions which will serve as an answer to the question propounded in the title.

Recalling for a moment my method of using massage, you will remember it is applied to the drum-head and middle ear through the external meatus, by means of phonographic ear tubes, and is of three kinds, *pneumo*, *phono* and *mixed massage*. By pneumo massage the ear structures are put into active motion through the increase of diminution of pressure within the tubes: in phono massage the sound is the active agent; mixed massage is a combination of the two, and has proved in my hands by far the most efficacious.

CASE I.—Miss E. G. of Philadelphia, ten years old, a patient of Dr. John Hunter, came January 28, 1894, with history that when eighteen months old she had scarlet fever; that the ears were painful; that the lymphatic glands below the ears enlarged and opened; that from this time on she apparently heard nothing, but felt violent jars only; that she has endeavored to utter sounds which seemed to resemble words. Dr. Burnett had given the opinion that nothing could be accomplished by treatment. By careful testing I arrived at the conclusion that the auditory nerve endings were, at least to some extent, sensitive; that however, it took a powerful sensation to excite them, and a long time for a sound message to be perceived, the tests being made by the phonograph. For a month I used the regular treatment for such cases. On February 28th I commenced the use of phono and mixed massage, and later pneumo-massage was applied twice a week. By May (1894), she could readily hear my watch tick, hear the friction cards easily, and the tuning fork annoyed her by reason of the intensity of sound. Voice-hearing was not good, but she heard a loud voice if words were slowly uttered (sluggishness of perception of auditory nerve). She has now

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increased her vocabulary to several hundred words, and is, with some difficulty, it is true, able to converse with other children, and more readily with her parents. For some time past she has been a pupil of the Pollock Public School of Philadelphia, and, while not able to hear at all well, yet is fairly proficient in her studies. After once manifesting itself, the improvement in hearing has been continuous throughout the entire course of treatment.

Case II.—Miss S. C. of Vicksburg, Va., thirteen years old, deaf mute, apparently congenital, had her ears treated for five years without any change. When she came to me she was tested by all methods, responding not even to the high tones of the phonograph. She had been taught a few of the simplest words, which she uttered in a screechy nasal tone. March 1, 1894, I commenced the mixed massage treatment, applying it twice a week for some five and a half months. She improved steadily, but in September last was compelled to go home. At that time she could hear the watch in both ears, friction cards readily, as well as the metronome and words distinctly uttered in a moderately loud voice. She is now able to converse with her parents and with others, pronouncing ordinary words fairly clearly, and herself constructs short sentences readily. The character of her voice is materially changed, the tones being much lower and of greater volume.

Case III.—James McC., three and a half years old, a patient of Dr. C. R. Marshall, of Philadelphia, came July 19, 1894; deaf mute, probably congenital, endeavors to say mamma, but the result is indifferent, none but the parents presuming to understand it. Was treated by the mixed massage method once a week for about four months, when it was necessary to suspend treatment, the result being a slight improvement; both father and mother insisting that the boy was brighter and attentive to loud sounds. In April of this year his father reported that there had been little or no change in his hearing, but he thought the boy occasionally heard loud and high-pitched noises. This case, upon its advent, was tested, responding to no test whatever. Upon his last visit he responded but slightly to high whistling tones (phonographically).

Case IV.—Ida D., aged three years, deaf mute, according to account of parents, acquired. As an infant she suffered for a period of several months from intestinal inanition. This patient had been an inmate of Miss Garrett's school for deaf children. I examined her September 25, 1894, and found by persistent phonographic testing that she possibly heard saw-mill sounds of high pitch. Upon consultation with Dr. Fussell of Manayunk, the family physician, he informed me of his belief that it was a case of congenital deafness, and indicated his disbelief in the possibility of there being any relief whatever. She was examined by Dr. Randall of Philadelphia, who pronounced the case hopeless. This child has been treated once and twice a week up to the present time. From the beginning the hearing improved steadily, but slowly, until now she hears the creak of the water spigot, a dog's bark, the noise of a door knob in motion; within a week she has been awakened while in bed on the second floor by the bark of a dog confined in the cellar, and has arisen imitating the dog's sounds without the slightest suggestion being given to her. In addition, she has developed the power of imitating sounds. When the sound of an O is distinctly uttered into the ear, she repeats the sound, but if the lip motion of an O be made without sound while she is watching the lips, she will repeat the motion without the sound. When her father, in playing the violin, strikes the A string, she invariably repeats the sound, even when the instrument is not in sight. She also repeats the same sound as it issues from an organ, and also when sung.

Case V.—Martha B., three and one-half years old, Henderson, Ky., was sent to me by Dr. Cheatham, of Louisville, Ky., who had pronounced it a hopeless case, with the proviso that possibly my methods might prove of value. I examined her October 16, 1894. All tests failed to bring forth any response except possibly extreme high whistling tones on the phonograph. The history indicates that this was probably a case of acquired deafness, she having, when one month old, been very sick for over two weeks with a high fever, spasmodic contractions of the limbs, the symptoms being suspicious of a mild scarlatinous

attack. Dr. Joseph S. Dickinson of Trenton, Ky., who treated the case, was not able to determine the exact nature of this illness. The case was placed at Miss Garretts' school at Bala, and, being treated but about every second week, has, according to the account of her teacher at this institution, given evidence of the perception of some high tones, and perhaps of some spoken sounds. Had this case been able to receive treatment as regularly as one or two before quoted, I feel sure the improvement would have been more marked.

CASE VI.—Moses L., sixteen months old, sent to me by Dr. A. P. Keller, of Philadelphia, was examined by me on March 29, 1895, giving no response to any hearing test. He has never endeavored to speak; the history of the onset of the trouble is indefinite, and I am inclined to believe it is a case of congenital deaf mutism. This case, after his third visit was able to hear the noise made by the motion of a door knob.

In addition to the reparative influences that massage effects on the middle and internal ears, it must not be forgotten that in the class of cases under consideration, the ear nerves have either never been awakened or else have been dormant from disuse for a long period of time, and that the methods which have produced the good results above mentioned have served to stimulate not only the ear structures, but also the nerve endings and their ganglia, and that much of the benefit resulting in these cases comes undoubtedly from the awakening of these nerves and their centres by the normal sound stimulation as practiced in the *pneumo-phono massage* method.

I know that conclusions drawn from a few cases are prone to be faulty and inconclusive, but when results are definite and positive, as in the cases above related, and where the conclusions arrived at are in consonance with theoretic reasoning and borne out by practical experience with similar methods in allied conditions, they must, when not opposed by equally important evidence to the contrary, be considered as true.

The *conclusions* may be tersely presented as follows:

1. That no negative opinion as to the results of treatment can be considered as justified even when all our ear tests fail to indicate the slightest trace of the power of hearing.

2. That every deaf mute should have his ears thoroughly examined, proper treatment instituted, and that this treatment should consist not only of former methods, but should include pneumo, phono and mixed massage.

3. That as a result of this method of treatment favorable effects have been obtained which have not been realized by any other treatment.

4. That in the present status of our knowledge we know not to what extent the power of hearing may be developed by this method; the lack being occasioned by the need of a greater period of time to allow of the further development of the function.

5. That even though the hearing of deaf mutes be not restored to normal or anywhere near thereto, yet the hearing power, as developed during the comparatively short period that this method has been in use, would prove of great value to the deaf mute not only in the development of his speech functions and in the protection of his person from external injury, but would be of great value to his family and friends in their more ready communication with him.

6. That through the improvement obtained by massage treatment, the teaching of deaf mutes by means of the lip reading method and the utterance of sounds in accordance with it is rendered less difficult, and more deaf mutes can be given the advantages of such education. The fact that they can be made to hear any sound rendering them more ready pupils.

The massage methods I employ and the results and conclusions obtained I have set forth in the series of papers here noted.

1. "Massage methods for the relief of Tinnitus and the Improvement of Hearing." Transactions Pennsylvania State Medical Society, 1894, p. 253.

2. "New Methods Employed for the Relief of Impaired Hearing, especially the use of the Phonograph, Vibrometer, Vibrophone and Metronomic Ear Masseur." Proceedings Philadelphia County Medical Society, 1894, p. 295.

3. "Massage versus Removal of the Sound Conducting Apparatus in Non-Suppurative cases of Disease of the Ear." Proceedings Philadelphia County Medical Society, 1894, p. 362.

4. "The Modern Treatment of Deafness." Alumni Report of Philadelphia College of Pharmacy, January, 1895.

5. "What are the Effects of Pneumo and Phono-massage on the Middle and Internal Ear?" Proceedings in Otological Section American Medical Association, 1895.

Accompanying paper No. 2, there is an attempt at a Bibliography of Massage Methods up to May, 1894.

RESPIRATION, SUFFOCATION AND RESUSCITATION.*

THE MAIN PHYSIOLOGICAL FACTORS WHICH PLAY THE RÔLE IN RESPIRATION, SUFFOCATION AND RESUSCITATION, AND THE AUTHOR'S METHOD OF PNEUMATIC ARTIFICIAL RESPIRATION.

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[CONTINUED.]

When we breathe, we draw in the air by our nostrils, which penetrates the trachea, or windpipe, thence passing into the bronchial tubes and tubelets, and thence into the air cells. Here it yields part of its oxygen to the blood, receiving carbonic acid in exchange. It was drawn in by a dilatation of the chest, and is driven out again by a contraction of the chest. Science has accurately measured the amount of air thus inspired and expired—namely, about 20 or 25 cubic inches each time. But we never empty our lungs by an expiration; there is always a much larger quantity of air remaining in the air cells; this quantity varying, of course, with the force of the effort. Herbst found that, while 25 cubic inches was the quantity expelled in ordinary quiet breathing, the quantity would rise to 90 and even 240 cubic inches by energetic efforts. It is therefore calculated that an adult man, with a well developed chest, will retain about 170 cubic inches of air in his lungs, after each respiration, during ordinary breathing; and as 25 inches will be added at the next inspiration, there will be alternately 175 and 200 cubic inches of air acting on the blood which rushes over the vast area of lungs. The phrase "vast area" is no exaggeration; for small as the bulk of those organs truly is, the amount of surface on which blood is exposed to the air in them has been calculated by Lindenau at not less than 2,642 square feet. Is it not wonderful to reflect that, in the course of a single year, 100,000 cubic feet of air have been drawn in and expelled by something like 9,000,000 of separate and complicated actions of breathing to aerate more than 3,500 tons of blood?

The injurious effect of tight lacing has often been pointed out, and in England and America, at least, women have pretty generally learned to see the danger, if not always the hideousness of those wasp-waists once so highly prized. A single fact elicited in the experiments of Herbst will probably have more weight than pages of eloquent exhortation. It is this: The same man who, when naked, was capable of inspiring 190 cubic inches at a breath, could only inspire 130 when dressed. Now, if we compare the tightness of a woman's stays with tightness of man's dress, we shall easily form a conception of the serious obstacle stays must be to efficient breathing; and the injurious effect of this insufficient breathing consists, as we shall see hereafter, in its inducing a

depression of all the vital functions. In respiration we draw in and give out a *similar quantity* of air, but this air is by no means of *similar quality*. It has been altered—vitiated. The ancients had no other notion of respiration than that it served to cool the blood, as the air cools the heated brow. We know that it serves to supply the indispensable conditions of vital changes, by removing carbonic acid from the blood, and supplying its place with oxygen. The air which is expired differs profoundly from that which was inspired; it has lost much of its oxygen, and has gained from three to six per cent. of carbonic acid, a large amount of vapor, traces of ammonia, hydrogen, and volatile organic substances, with an increase of heat. It was pure. respirable air when it entered, and is now so vitiated that after a few repetitions of the process it becomes irrespirable. The vitiation results from the carbonic acid. The quantity of this gas which is momently thrown into the atmosphere by each individual, varies accordingly to sex, age, physical and mental condition, and according to the season of the year and time of day. We are constantly exhaling carbonic acid, but not in constant quantities. Men exhale much more than women; during the ages of from 16 to 40 the quantities exhaled by men are nearly double that exhaled by women of the same ages. In men it is observed that the amount gradually increases from the age of 8 to that of 30, making a sudden start at the age of puberty. From the age of 30 it decreases gradually, till at extreme old age the amount is no greater than it was at 10. In women a noticeable phenomenon is observed; the amount increases from infancy to puberty, just as in men; but at that epoch the increase suddenly ceases, and remains stationary till the change of life, when the amount increases. Besides such variations depending on age and sex, there are others dependent on the muscular activity and physical condition of the individual. The amount of carbonic acid exhaled during digestion is greater than that exhaled during fast, and greater in sunlight than in darkness. Wines, spirits, tea, coffee, and narcotics lessen the amount; not, however, because they interfere with the process of respiration, but because they cause less carbonic acid to be produced by the organism — they protect the tissues from the destructive action of oxygen.

The carbonic acid thus thrown into the air is the product of disintegrated tissues—the ashes of the vital flame. The blood in the capillaries parts with its oxygen received in the lungs, and, according to the current hypothesis takes up in exchange the carbonic acid produced by the action of the tissues. If we were permitted to designate every interchange of these gases by the name of respiration, we should have to speak of two different kinds of respiration; one taking place in the lungs, where carbonic acid is exchanged for oxygen, the other taking place in the tissues, where oxygen is exchanged for carbonic acid; but a more accurate and philosophical nomenclature, which seeks its terms in a consideration of functions, and not in the results effected by those functions, will not permit such confusion.

The exchange of these gases, considered simply as an exchange, is a physical fact resting on well-known physical laws. There have been, and there still are, disputes as to whether the gases are free in the blood, as in water, or are in a state of slight chemical combination; but the facility with which the exchange is made seems to be as great as if they were free. If blood be shaken in a vessel containing air, it will absorb more than a tenth of its volume of oxygen from that air. It is then saturated; and if now poured into a vessel containing carbonic acid, and there shaken, it will abandon almost all its oxygen, and absorb carbonic acid. This is a simple illustration of the interchange effected in the lungs and in the tissues; for, as previously indicated, the delicate walls of the blood vessels oppose no obstacle in this interchange. It is only necessary that the blood should be brought in contact with an atmosphere, or a fluid, of a composition specifically different from its own; in the lungs, the carbonized venous blood comes in contact with air containing scarcely any carbonic acid. In the tissues oxygenized arterial blood comes in contact with a plasma which contains scarcely any oxygen; and in both cases

the blood yields up its own gas in exchange for another. In the normal process the exchange is always that of *these* gases; but to prove the simple physical nature of the exchange, we have only to substitute hydrogen for oxygen, and the animal confined in a vessel containing this gas will be found to exhale carbonic acid with the same facility as when atmospheric air is breathed. No animal can continue long to breathe hydrogen, simply because that gas does not furnish the conditions of vitality; but while the animal breathes in hydrogen, the exhalation of carbonic acid is as perfect as at any other time; thus showing that the exhalation depends on the difference in the nature of the gases in the atmosphere and in the blood.

When we breathe over and over again the same air, we gradually vitiate it by the constant exhalation of carbonic acid, which gradually brings the air up to the point where the difference between it and the blood—and as regards the proportion of carbonic acid—disappears. The blood ceases to be arterialized, and the vital functions are arrested. In vain does the air still contain a quantity of life-giving oxygen; the blood cannot take it up, because it cannot get rid of the carbonic acid, and it cannot get rid of its carbonic acid because the conditions of the exchange are absent. To make an animal breathe air overcharged with carbonic acid is equivalent to a gradual prevention of his breathing at all. Suffocation results from vitiated air in precisely the same manner as from interception of the air. Although burking and gagging are crimes which appall the public, that public seems almost indifferent to the milder form of the same murder when it is called "want of ventilation." In spite of the historical infamy of the Black Hole at Calcutta, our prisons, hospitals, theaters, churches and other public buildings were left disgracefully neglected, until, thanks to the energetic labors of our sanitary reformers, public attention was aroused. That thousands have been the victims of public ignorance on this important matter, may be shown by a single example. The deaths of new-born infants between the ages of one and fifteen days, which in the Dublin Lying-in Hospital amounted in the course of four years to 2,944 out of 7,650 births, were suddenly reduced to only 279 deaths during the same period, after a new system of ventilation had been adopted. Thus, more than 2,500 deaths, or one in every three births, must be attributed to the bad ventilation. Since the last fifteen years much change has taken place regarding the system of ventilation in our public institutions and private dwellings. In Europe and America the public is daily becoming more enlightened on the subject of ventilation, although a dangerous indifference, springing from want of elementary knowledge, is still prevalent, and taxes the patience of reformers; but in the country where these lines are written, it is painful to observe that even highly cultivated men seem almost insensible to the importance of fresh air. Many in our over-crowded districts sit for hours in low-crowded rooms, so dense with tobacco smoke that on entering you cannot recognize your friends; and so vitiated is the atmosphere by the compound of breath, bad tobacco, human exhalations, and an iron stove, that at first it seems impossible for you to breathe in it. Even in their private rooms they breathe a hot, musty, dry air, which makes one gasp for an open window. It is true that after a while you get accustomed to the air. You also get accustomed to that of the smoke-filled rooms with people and other conditions. On entering, you felt it would be impossible to stay there ten minutes; but in less than ten minutes it has become quite tolerable, and in half an hour scarcely appreciable. If you quit the room for a few minutes, and return once more after having breathed fresh air, again you perceive the poisonous condition of the atmosphere, but again you will get accustomed to it, and seem to breathe freely in it. Was this atmosphere really not injurious? or have your sensations, like sentinels asleep, ceased to warn you of your danger? To answer this, we will first bring forward some experiments instituted by Claude Bernard, on the influence of vitiated air. A sparrow left in a bell-glass to breathe over and over again the same air, will live in it for upwards of three hours; but at the close of the second hour—when there is consequently still air of sufficient purity to permit this sparrow's

breathing it for more than an hour longer—if a fresh and vigorous sparrow be introduced, it will expire almost immediately. The air which would suffice for the respiration of one sparrow suffocates another. Nay, more; if the sparrow be taken from the glass at the close of the third hour, when very feeble, it may be restored to activity; and no sooner has it recovered sufficient vigor to fly about again, than, if once more introduced into the atmosphere from which it was taken, it will perish immediately. Another experiment points to a similar result. A sparrow is confined in a bell-glass, and at the end of about an hour and a half it is still alive, although obviously suffering; a second sparrow is introduced; in about ten minutes the new-comer is dead, while the original occupant flies about the lecture-room as soon as liberated.

One cannot try experiments on human beings as on animals, but accident and disease frequently furnish us with experiments made to our hand. What has been related of the birds is confirmed by an accident which befell two young Frenchwomen. They were in a room heated by a coke stove. One of them was suffocated, and fell senseless on the floor. The other, who was in bed, suffering from typhoid fever, resisted the poisonous influence of the atmosphere, so as to be able to scream till assistance came. They were both rescued, but the healthy girl, who had succumbed to the noxious air, was found to have a paralysis of the left arm, which lasted for more than six months. Here, as in the case of the sparrows, we find the paradoxical result to be that the poisonous action of a vitiated air is better resisted by the feeble, sickly organism, than by the vigorous, healthy organism. This paradox admits of physiological explanation. In the vitiated air of a German Kneipe, or other similar places, as in that of the houses of the poor, we find those who have had time to adjust themselves to it, breathing without apparent inconvenience, although each new-comer feels the air to be vitiated; and because they "get accustomed to it," people very naturally suppose that no injurious effect can follow. Here lies the dangerous fallacy. They get accustomed to it indeed, and only because they do so are they contented to remain in it. But at what price? By what means? By a gradual depression of all the functions of nutrition and secretion. In this depressed condition less oxygen is absorbed, and there is less needed in the atmosphere. A vitiated air will suffice for the respiration of a depressed organism, as it would amply suffice for the respiration of a cold-blooded animal. When we enter a vitiated atmosphere, our breathing becomes laborious; the consequence of this is a depression of all the organic functions, and then the breathing is easy again, because we no longer require and we no longer produce so much carbonic acid. Were it not for this adjustment of this organism to the medium by a gradual depression of the functions, continued existence in a vitiated atmosphere would be impossible; we see the vigorous bird perish instantaneously in air which would sustain the enfeebled for upwards of an hour. Thus does physiology explain the paradox; but at the same time it points out the fallacy of supposing that bad air can be harmless because we "get accustomed" to it. However a fortunate circumstance for those who have to breathe bad air, that the organism is quickly depressed to such a point as to render such air respirable, no one will deny that depressions of this kind are necessarily injurious, especially when frequently experienced. There is indeed a wonderful elasticity in the organism, enabling it to adapt itself to changing conditions; but a frequent depression of functional activity must be injurious, and fatal if prolonged. It is interesting to observe the gradual adjustment of the organism, as contrasted with one less gradual. The longer the time allowed, the easier is the adjustment. These examples are often witnessed in workmen whose task it is to do labor in such places where the air is entirely laden down with poisonous gases, etc. Thus a bird will live three hours in a certain quantity of air; in the same quantity, two birds of the same species, age and size, will not live one hour and a half, as might be supposed, but only one hour and a quarter. Conversely, the bird which will live only one hour in a pint of air will live three hours in two pints. Enlightened by these remarkable results, we shall now

be able to regard respiration as a physiological function rather than as a simple physical process. On more than one occasion we have had to protest against the tendency to explain vital phenomena by physical and chemical laws only, without regard to the order of conceptions specially belonging to vital phenomena; and we must repeat that protest in the present case. That respiration is ultimately dependent on physical laws, no one thinks of disputing; and in the arduous endeavor to detect the operation of those laws, it is natural that men should neglect the still more difficult studies of vital laws. But we think it can be shown that however far analysis may trace the operation of the laws of gaseous interchange and diffusion, and the condensing action of moist membranes, those will only conduct us to the threshold; they will never open for us the temple. These physical laws reveal only one part of the mystery. Respiration is not a simple physical fact. It is the function of a living organism, and as such receives a specific character from that organism. No sooner do we cease to regard the exclusively physical aspect of this function—no sooner do we fix our attention on the organism and its influence, than the whole theory we have raised on the laws of gaseous interchange suddenly totters and falls.

It seems easy to explain why warm-blooded animals cease to breathe in an atmosphere charged with a certain percentage of carbonic acid, although there may still remain sufficient oxygen to permit a candle to burn in it, and even to permit continued respiration if the carbonic acid be removed. The presence of a certain amount of carbonic acid in the air prevents the exhalation of that gas from the blood. As we read the explanation, nothing can seem clearer, and we admire the skill with which the laws of the absorption of gases are brought to bear on the fact. But as we pursue our researches, various difficulties arise, and as we extend the inquiry from the respiration of warm-blooded to that of cold-blooded animals, we learn that the fact so luminously explained is not at all true of the simpler organisms. Let us for a moment consider one striking contradiction in the theory; the air which has once passed through the lungs of a man, and which, in losing four or five per cent. of its oxygen has become charged with three or four per cent. of carbonic acid, will yield but very little of its remaining oxygen when again passed through the lungs; and if this air be breathed over and over again, until the sense of suffocation forces a cessation, the air will still be found to contain 10 per cent. of oxygen—that is to say, nearly half of its original quantity. In air thus vitiated the respiratory process is impossible, but only impossible for warm-blooded animals in health. Frogs, reptiles, fish and mollusks, instead of perishing when the air has lost about half its oxygen, continue to breathe and to absorb oxygen, almost as long as there is any left. Spallanzani, Humboldt and Matteucci, have placed this beyond a doubt by their experiments; and when we consider how long these experiments have been before the world, it is a matter of surprise that the contradiction they give to all the purely physical theories of respiration has not been insisted on. If process depends simply on the proportion of gases in the atmosphere, how is it that one animal can continue to breathe in an atmosphere irrespirable by another? If it be simply the interchange of oxygen and carbonic acid, and this interchange be frustrated whenever 11 per cent. of oxygen has disappeared, the law must be absolute, and as applicable to reptiles and mollusks as to birds or mammals. Instead of this we find that reptiles can continue to breath long after such a limit has been passed; they continue to absorb oxygen as long as even only three per cent. remains, in spite of the continually increasing proportion of carbonic acid. How is it that the physical laws of absorption frustrated the respiration of one class of animals, and were powerless with another class? Why is it that when a bird and a frog are confined in the same vessel, the frog will continue to absorb oxygen from the vitiated air in which the bird has long since perished? Clearly, the cause of this difference lies in the difference of the organism, and we must no longer seek in the mere quantities of gases an explanation of interrupted respiration; we must no longer say that "breathing becomes impossible when the air is charged with a

certain amount of carbonic acid because that amount prevents the gaseous interchange;" but we must say that such an amount prevents the gaseous interchange, because it interferes with the organic action of the pulmonary apparatus. The distinction becomes palpable when we have an organism which is not affected by this amount of carbonic acid, and is even more palpable when we see a warm-blooded animal capable of breathing for a long period the air which under a different condition, it would find irrespirable. We have seen how a bird, with its functions depressed, can continue to breathe for an hour in an atmosphere which immediately suffocated another bird of the same species; whereby it became clear that the lungs of one warm-blooded animal could absorb oxygen from an atmosphere in which there was such a proportion of carbonic acid; that sufficient oxygen could not be absorbed by a vigorous animal of the same species.

The intervention of organic conditions, modifying the simple physical laws of gaseous exchange, is sufficiently evident from what has just been said; but we have as yet no clear insight into the nature of this intervention; we do not know why blood, charged with carbonic acid, cannot in the one case exchange that gas for oxygen, of which 10 per cent. still remains, since in another case the same blood can effect the exchange when there is even less than 10 per cent. of oxygen. Atmospheric air contains only 21 per cent. of oxygen. But if 50 per cent. of oxygen be mixed with 50 of carbonic acid, a warm-blooded animal is suffocated in it, in spite of there being more than double the amount of oxygen there is in the ordinary atmosphere. Bernard, who made the experiment, thinks that the carbonic acid in this mixture prevented this oxygen from entering the blood, not only because of its greater solubility, which gives it a tendency to displace the oxygen, but also because of the obstacle it presents to the exhalation of carbonic acid. On the other hand, the extensive and careful experiments of Regnault and Reiset show that respiration will take place quite well in an atmosphere which contains as much as 23 per cent. of carbonic acid, if at the same time it contains as much as 40 per cent. of oxygen. How are we, on physical principles, to reconcile such facts as those just cited? In the one case we see that 50 per cent. of oxygen is insufficient if the amount of carbonic acid be also 50 per cent.; in another case we see that 40 per cent. of oxygen suffices if the carbonic acid does not exceed 23 per cent.; and we could explain both by saying, that unless the amount of oxygen nearly doubles that of carbonic acid, respiration is impossible, were it not for the irritable objection that reptiles breathe in an atmosphere which has become charged with carbonic acid, and has gradually lost all but 3 per cent. of its oxygen.

We have raised difficulties which we cannot pretend to remove. It is enough to have called attention to the physiological problem involved as a justification of our skepticism in presence of the physical explanations. Respiration is not a simple interchange of gases, but an organic function, which chiefly consists in exhaling carbonic acid and absorbing oxygen; whatever interferes with the exhalation or the absorption, checks respiration, no matter what may be the condition of the atmosphere. As a final proof of the correctness of this conception we will add that oxide of carbon, by preventing the exhalation of carbonic acid from the blood, prevents all respiration whatever amount of oxygen may be in the air. Moreover, experimenters are now agreed that there is no accurate correspondence between the amounts of oxygen absorbed and carbonic acid exhaled, as there ought to be were the process one of simple exchange. Spallanzani placed four couples of snails in four separate vessels containing atmospheric air; he found that two of these couples absorbed 20, one 19½, and the fourth only 17 of oxygen, but the amount of carbonic acid exhaled was strikingly at variance. In two vessels he found 20 and 17 of oxygen replaced by 3 of carbonic acid; in two others, 20 and 19½ by 4 and 8 of carbonic acid; clearly showing that the exhalation had been one process and the absorbtion another.

[TO BE CONTINUED.]

A RARE CASE OF HYDROCELE.

WALTER H. PARCELS, Lewistown, Pa.

Mr. W. H., about ten years ago, consulted me for an enlargement of the right side of the scrotum. A hasty diagnosis of hydrocele was confirmed by the introduction of the needle of a hypodermic syringe, and the withdrawal of serum. After the use of the trocar the enlargement was reduced to about one-third of its former size. I regarded the remaining hardness as a chronic enlargement of the testicle, and estimated it to be about four times its normal size. Frequent tappings becoming necessary, he soon learned to perform the operation himself, and the case passed from my care, and almost from my recollection.

Last Spring I was called to see him and found him in bed, with fever and chills. The scrotal tumor was about three times as large as the fist of an adult and excessively tender to the touch. The tenderness and swelling had come on immediately after using the trocar some ten days before.

I applied hot fomentations, and later iodine, to the scrotum, and gave quinia, etc., internally.

The hypodermic needle showed the presence of serum, but apparently no pus. Being a member of the House of Representatives, I left the case in charge of Dr. J. A. C. Clarkson, a skillful surgeon of this place. On my return home the following Saturday, pus had accumulated in the hydrocele sac, which we evacuated, and inserting a drainage tube at the bottom of the scrotum, brought it out again at a point nearer the top. Through this bichloride solutions were daily injected, and his general health most carefully looked after, for he was seventy-three years old, and feeble. Later the drainage tube was withdrawn, a seton took its place, and the antiseptic injections continued. His general health improved, but the discharge of pus, which was sometimes fetid, seemed not to lessen in quantity, although this plan of treatment was continued two or three weeks. Dr. Clarkson agreed with me that the enlargement remaining after evacuating the sac, was an enlarged testicle. Where was the abscess? In the hydrocele sac or in the body of the diseased testicle? Plainly we had to go through much tissue to reach the cavity.

Under an anesthetic we boldly laid open the whole tumor, from one opening to the other where the seton had been. The knife passed through a substance three-fourths of an inch thick, and nearly as tough as cartilage. The finger introduced into the cavity surprised us, and the patient also, for firmly imbedded in the tissue surrounding it was the testicle, atrophied to about one-third its normal size. What we had supposed was an enlarged testicle was simply one of those very rare cases of hydrocele with a sac which had become fibrous, and in places cartilaginous. The cavity, which was senseless to the touch, was vivified by the use of caustics until healthy granulations appeared, when it was treated simply antiseptically, until it disappeared about four weeks later. Atrophy of the whole mass rapidly followed the use of the knife, and in six weeks the contents of both sides of the scrotum were about equal in size.

Query: Why did atrophy so rapidly follow the use of the knife, and why did it not follow the use of the seton?

Hæmostasis in Vaginal Hysterectomy.

Delore (*Lyon Méd.*, June 30, 1895), adopts the following method of detaching the cervix, whereby the chances of hemorrhage are reduced to a minimum. He avoids the complete circular cut into the mucous membrane. A semi-circular incision is made anteriorly and posteriorly. The ends of opposite incisions are not made to meet, so that the mucosa reflected on to the cervix in lateral fornices is not wounded. The bladder is then detached, and Douglas's pouch laid open; then the broad ligament is seized on each side between the blades of a long-handled forceps, which also grasps the mucous membrane. The uterus can be detached.

COMMUNICATIONS.

A CLINICAL STUDY OF TRIONAL.†

DR. GALLIARD, PARIS.*

Trional, which was discovered in 1890 by Baumann and Kast, and introduced shortly after into medical practice by Barth and Rumpel, now occupies a prominent place among the group of hypnotics. Although much employed in Germany this remedy has not been utilized to any extent in France. At the request of Dr. Worms, a member of the Paris Academy of Medicine, the author has made a number of experiments with regard to the action of trional. As it is his intention to make this disulphone, which is closely related to sulfonal, the subject of a special study, he has refrained from mentioning here the results obtained by other authors, as well as a number of reports not yet published, for which he is indebted to the kindness of Drs. Worms, Duguet and Perrier. He has himself employed trional in forty cases of sleeplessness. In all of these, with but one exception, the drug was administered *per os*, and always in single doses of 1.0 gm. (15 grains).

A review of these cases shows that only seven patients proved refractory to the effects of trional. In cases in which the author observed that the first dose failed to produce the desired sleep, he made a trial of larger doses; in thirty-three cases, the effect persisted at least a few hours, or even the entire night, so that it might be characterized as partial or complete.

	No. of Cases.	Successes.	Failures.
Acute Diseases. . . .	5	5	0
Chronic Bronchitis . .	7	6	1
Phthisis Pulmonalis. .	15	10	5
Cardiac Diseases . . .	6	5	1
Chronic Nephritis. . .	1	1	0
Chronic Alcoholism. .	2	2	0
Morphinomania. . . .	1	1	0
Insomnia, the simple as well as the neurasthenic	3	3	0
Total	40	33	7

Trional has neither antipyretic nor analgesic properties, nor is it capable of alleviating cough or acting upon night-sweats. It is to be regarded as a hypnotic pure and simple. In ordinary insomnia, and in that of neurasthenics, it would seem to be especially indicated, as appears from the above table. As the author has had no occasion to administer in psychical disorders or alcoholic delirium, he is unable to add his testimony to the observations of foreign investigators who have praised it for this purpose. In the majority of cases in which he prescribed trional it proved of service, producing sleep without exerting any influence upon the effects of other medicaments which were administered simultaneously, and without occasioning any serious complications.

As regards after-effects, a feeling of emptiness in the head, vertigo and nausea sometimes occurred on awakening. In other respects the sleep is quiet and awaking agreeable.

No influence upon the circulation was observed, even in cardiac cases. The respiration was not affected, and the hemoptysis which occurred in a phthisical case the night after taking trional, was simply an accidental condition which had been previously observed in the same case. No injurious influence upon the gastro-intestinal tract was noticed. A woman who was admitted to the hospital in the third month of pregnancy for continuous vomiting, received trional during four successive nights, which secured a quiet sleep without suspending the effect of the anti-emetics administered; she soon left the hospital cured.

With regard to the urine, nothing abnormal was noted. Occasionally slight traces of a red coloring matter were found in the urine which might suggest the presence of hematoporphyrine, but this has not been thoroughly studied by the author. He suspects, however,

† Author's abstract of paper read before the Academy of Medicine, Paris.

* Physician to the Tenon Hospital.

that hematoporphyrinuria occurs only in those persons who have been subjected for an extremely long time to the action of trional. None of his patients employed more than six doses of 1.0 gm. (15 grains) successively. A patient of his colleague, Dr. Worms, who for five weeks took 1.0 to 1.5 gm. daily, voided urine which, on analysis by Boymond, presented the following features: Color reddish-yellow, Type No. 5 to 4, according to Neubauer and Vogel; acid reaction; specific gravity 1003. In the sediment were found numerous leucocytes, but otherwise no abnormal constituents; the only abnormal element was a substance which had reduction capacity and a deviation of 0.4 to 0.5. M. Boymond believes that this reducing substance is a metamorphotic product of trional. According to Morro, however, trional is completely decomposed in the organism, and therefore cannot appear in the urine in the same manner as in the case of sulfonal, and according to Schaumann, trional has no influence upon the metabolism, and, unlike chloral, does not destroy albuminous substances.

In conclusion, trional in doses of 1.0 gm. is innocuous and serviceable in insomnia due to various causes. As it is but slightly soluble in warm water, it is best given in wafers, and its administration followed by a cupful of warm fluid in order to accelerate its hypnotic effect. In ordering an enema of trional, which was employed successfully in one of his cases, it is advisable to make use of an. apparatus which permits one to completely inject the trional suspended in the fluid. It is his intention to make a trial of the drug in the form of suppositories.

As regards the question of whether trional is to be preferred to sulfonal, the author states that the hypnotic effect of the latter is often slow, while trional has the advantage, in the majority of cases, of producing sleep at the end of twenty to twenty-five minutes and sometimes even in a shorter time.

In a discussion of this paper, Dr. Marie shared the view of Dr. Galliard in reference to the comparison between sulfonal and trional. He has employed the latter remedy and always preferred it to sulfonal.

Galvanism as a Depilatory.

LeHardy reports the following interesting case (*Virginia Medical Monthly*, August, 1895):—

A handsome and healthy brunette of twenty-four years, from North Carolina, had *upon her face a very thick and silky beard*, "moustache," and "imperiale," that would have been the pride of any man, but intolerable to a woman, and she determined to get rid of it at any sacrifice. I started the treatment with the orthodox iridio-platinum needle, passing a weak current after each insertion, but the pain was so acute, and the progress so slow, that I resorted to depilation by introducing caustic potash with a needle. I soon discovered, however, that one application was not sufficient to destroy the bulb; two, or even three, were often needed. The severity of the pain, and the formation of deep ulcers, demonstrated this method to be worthless. I next procured fine cambric needles (No. 12); these I inserted along the shaft and well into the bulb of each hair; on one side of the face twenty-five to fifty needles were introduced at each sitting, taking care to separate the needles well, to prevent inflammation.

The insertion of these needles, if carefully done, gives no pain whatever. A soft Turkish sponge, moistened with salt water, was then placed in contact with the needles and the surrounding skin. Upon this I pressed the *negative* electrode, while the positive was held by the patient. I then turned on a weak current from the battery, and increased it gradually until it was sensibly felt.

At the expiration of from five to eight minutes, the current was closed, the sponge removed, and the needle withdrawn. Where the needles had been inserted, there was a small white spot, the bulb was destroyed, and hair could be removed easily. This process was repeated every few days until the last bulb was destroyed and the last hair removed. No unsightly marks were left except the few cicatrices produced by caustic potash, and the lady was fully rewarded for her fortitude, patience and determination. This experiment proved to be eminently successful. Having repeated this treatment in a number of cases since and obtained good results, I can recommend it to the profession.

NASAL AND POST-NASAL CATARRH; TREATMENT AND PREVENTION OF IN YOUNG CHILDREN.

J. BERMANN, M.D., WASHINGTON, D. C.

I am tempted to commence with words which I heard Prof. von Rhinecker, in Würzburg, utter in his Clinic: "The disease with which we are to become acquainted here, is one of the most important for the student to know; he must be prepared to meet it at every step in his future career, as almost everybody has it; I have had it, so have my family, and you all will get it, if you are as yet free from it." This quotation will hold good in a much wider sense with my subject. I think I am justified in saying that in this country everybody is more or less afflicted with catarrh of the upper respiratory tract, and I propose to give a resumé of my views on this disease, the conclusions I have reached after fifteen years practical experience; and, what is of more importance, how a great deal of it can be prevented. Limited time prevents an exhaustive quotation of the literature, and I do not mention every author who holds the same views, or is opposed to them. I do not propose to include those forms of catarrh due to such causes as syphillis, tuberculosis, and mechanical irritants.

Catarrh is caused by catching cold, as the popular saying goes. It means that the person affected has more or less profuse discharge from the nose (I speak of the earliest stages) and has fits of sneezing. The nose is usually congested to such an extent that mouth breathing becomes a necessity; there is a considerable dropping of phlegm from the posterior nares into the pharnyx or larynx, and with smaller children it is frequently accompanied by more or less fever. It runs its course usually within a fortnight and an almost perfect restitution *ad integrum* takes place. I say *almost*, because it always leaves a disposition to a repetition of the attacks, and very frequently a slight congestion or thickening of the nasal mucous membranes. With small children a quite distressing cough accompanies it often and then the family physician is usually called in. He will usually prescribe one of the customary cough mixtures, and as the cold will get well in time of its own accord, if the patient is not injudiciously exposed, he will naturally receive more or less credit for his satisfactory treatment.

In the majority of cases, especially with the poorer classes, the parents would not even dream of calling in a physician for such a little thing as a cold in the head, and the foundation is laid for all the unpleasant sequelæ due to catarrhal congestion of the nasal and post-nasal mucous membranes, such as are brought to the specialist in later years when the advanced stage of the disease necessitates energetic special treatment. One of the most frequent impediments to breathing which the specialist has then to deal with, is the deflection of the septum, the origin of which, according to all the existing hand-books, seems to be hidden in impenetrable mystery. Even in the last and most excellent hand-bork on this subject, "The Diseases of the Upper Air Passages," by Prof. Moritz Schmidt, of Frankfort-on-the-Main, the author seems inclined to consider them caused principally by mechanical injuries, acquired during early infancy. I must confess that I do not think it likely that even a number of slight falls on the nose will produce such a lasting deformity as a deflection of the septum, especially when we consider the elasticity of the organ in small children and its slight prominence. I have given a good deal of thought to the subject for the last few years, and think I have found a more logical explanation for the excessive frequency of its occurrence. As I said, a cold in the head in very small infants is a very frequent thing, and here we have in my opinion to look for the origin of the deflected septum. We know that a catarrhal congestion of the membrane means an

increased supply of blood to the portion affected, and, in course of time, a thickening not only of the submucosa but also of the mucosa and its epithelium, to such an extent that in transverse sections of such membranes we often find the epithelial layer ten times its original thickness. The submucosa forms also part of the perichondrium and periosteum, and we can take it for granted that the same cause which will produce such a hyperplasia of the outer layers, is sure to produce the same effect on the tissues forming the septum, *id est* the cartilage and the bone. Without entering into histological details, I simply state that an increased growth of the vomer, both of its cartilage and bone, must take place principally at its upper and lower portion ; that is to say, the septum narium will grow faster than it would under normal conditions. As it is imbedded in a fixed position both above and below, it will have to give way and bend out to one side or the other in order to make room for the increase in its height, and then we have a deflection which may be a very slight one in the beginning, but when it once exists it will increase in size with the increased size of the organ, especially if the tendency to catarrh of the nose is not checked in early infancy, when it can be done with comparative facility.

I have always followed the advice given by Henoch, to treat the nose of an infant, even if it should be only a few days old, if it has a cold in the head and does not breathe perfectly, with a two per cent. solution of nitrate of silver applied with a brush. There are, no doubt, other agents which will also give satisfaction, but the nitrate of silver solution has always proved absolutely inoffensive, even with the youngest babies. Care must be taken, of course, not to have the brush overloaded with the fluid, so that it can drop into the larynx. The child's head is held firmly between the knees of the operator, while the body, hands and feet are held by the nurse, who is sitting in front of him. The baby will, of course, kick vigorously against such interference with its nasal organ, but you will have the satisfaction (treat every slight cold in an infant in this manner,) to know that you have done a great deal towards preventing the child from getting a deflected septum, or affections of the ear which are in almost all cases due to neglected nasal and post-nasal catarrh. I would even go further and say to you, call the mother's or nurse's attention to the fact that the only natural way for a baby to breathe is through its nose with closed lips, *and the breathing should be almost inaudible.* If the baby makes any noise in breathing through its nose apply the next day the nitrate of silver solution in the manner described, or show the mother or nurse how to do it properly. With this simple remedy you will do your patient more good than if you wait until the catarrh is fully developed so that you will have to send the patient to the specialist. I am decidedly of the opinion that in otherwise healthy children the hyperplasia of the adenoid tissue in the post-nasal space can be avoided by such interference with an acute rhinitis. The development of this hyperplastic tissue can only be explained by an irritated condition of the post-nasal membranes. This irritated condition always exists when the infant or child is forced to breathe through its mouth and cannot get rid of the accumulated phlegm in its nose and nasopharynx. The consequence is that the secretion on the pharyngeal membrane is dried up by the inspiratory and expiratory air passing over it. The irritation set up by this layer of dried mucous spreads in all directions and it can easily be imagined how such a condition of affairs will produce hyperplastic adenoid tissue as well as hypertrophy of the nasal membranes. You have only to stand by and watch a child sleeping with obstructed nose and observe how often the poor little thing tries to shut its mouth and breathe naturally, hear the unnatural noises it makes, and you will soon be convinced that to neglect such a cold in an infant can throw upon you the responsibility of having the child to become a victim of chronic nasal catarrh, post-nasal catarrh, adenoid vegetations, hypertrophy of the pharyngeal tonsil, or middle ear catarrh with subsequent deafness.

This brings me to another point. Galvano-cautery is with most specialists the remedy par excellence for chronic nasal catarrh. They destroy with the

cautery knife or point more or less of the hypertrophic membrane, in order to produce a cicatricial contraction, and will for a while enable the patient to breathe freer through his nose. It has been observed by me, as well as by others, especially Victor Lange, of Copenhagen, that after a year or two, the patient is in a much worse condition than he was before. The hypertrophy has disappeared, it is true, in the cases treated by cautery, but instead of the hypertrophic catarrh the unfortunate is now afflicted with an incurable atrophic catarrh, and if we can manage to keep his nose clear from those crusts of mucous and dust which accumulate in such noses, we have done everything in our power. For such hypertrophies where others use the galvano-cautery, chromic acid, glacial acetic acid, or other caustic, I use the tri-chloracetic acid only, and have done so for a number of years. I believe I was the first to apply this acid to the membranes of the nose in catarrh. I do not wish to set up any claim of priority, but I may safely say that I have used it longer than any of those who have written papers on the subject. The reason, perhaps, why I did not publish my mode of application was that my method of applying the acid would very likely, in the hands of many, prove either ineffective or even dangerous to the patient. The instrument I use is a glass tube drawn out very fine and bent at a proper angle. To the large end I fasten a rubber tube with a mouth-piece, to enable me to force the acid out by blowing into it. It is unnecessary to use any dilution of the acid for purposes of cautery. A certain amount of the crystals in the bottle will always melt in ordinary temperature, and this I draw up by suction into my glass tube, where it remains by capillary attraction. The tube will only hold a small fraction of a drop, so that I need not fear to apply it in excess, even if I force it all out. After the nose has been thoroughly cocainized by cotton plugs moistened with a four per cent. solution, the acid is applied to the hypertrophic places only. The advantage of this method is that you can, provided your hand is steady enough, count upon its reaching the place you aim for in any part of the nose you can illuminate, and no other. It does not form a slough, and if you use the precaution of cocainizing the nose afterwards, the patient experiences little or no inconvenience. These applications should be repeated at intervals of from one to two weeks, in the beginning very carefully, as the reaction varies considerably in different people. I have seen hyperthophies fully a quarter of an inch thick absolutely melt away after three or four such applications with the perfectly normal mucous membrane showing in its place.

Not only in hypertrophic catarrh would I advocate the use of this acid, but also in those forms where there is more tendency to atrophy, that is, where the membrane proves to be abnormally thin so that even a very slight spray will make it bleed. In those cases I apply only very minute quantities of the acid, usually only on the lower concha, and I have seen in the course of one year such an abnormally thin membrane change its character completely and present a perfectly normal appearance. Even in cases of ozæna of several years standing have I been able after sufficiently long treatment to effect a complete cure of this loathsome disease. It has been recommended lately by St. v. Stein, in Moskow, to use a strongly diluted solution of the acid in organic cases, and I have followed the suggestion and given it a trial in some appropriate cases. The result was not as encouraging as I was led to believe, and as the application is much more painful and has to be repeated daily two or three times, I have returned to the use of the undiluted acid at longer intervals after a thorough cleansing of the nose.

Not only in hypertrophic and atrophic catarrh has the trichloracetic acid been of such service to me, but also in polypoid degeneration of the nasal membrane have I been able to achieve such results as cannot be claimed by any other method of treatment. We know that a polypus after extraction with a snare or forceps almost without exception returns within a comparatively short time, and even the most thorough cauterization of the pedicle will quite frequently not prevent its recurrence. Of course, if a polypus obstructs the

nose so as to prevent free breathing and shows a pedicle, I always take it out first with the snare. But this I do principally to give the patient some immediate relief and to enable me to apply the acid to the origin of the trouble—the diseased ethmoid bone. I fully concur with Woakes on this point, who first called attention to the fact that in all polypoid degeneration of the nasal membrane co-exists an inflamed condition of the underlying bone, the so-called ethmoiditis. I have not yet seen the case of a nasal polypus where a careful search would not reveal to me denuded bone, and to this I apply the acid in, comparatively speaking, heroic doses. For this purpose I do not know of any instrument that could take the place of my little glass tubes. You may tell me that a fine platina needle would even do better than one of glass, and I once thought so too. Experience has shown me that this is erroneous, as the capillary attraction of the fine tube will always draw a little mucus into the tube where it forms an insoluble block, and nothing short of making it red hot and burning it out will remove it. If there were any way of preventing this, I am willing to concede that a fine platina needle would be sometimes preferable, as the danger of breaking the tube is avoided; but the very fragility of the glass tube, on the other hand, is a point in its favor, as I am enabled, in case it gets obstructed, to break the obstructed part off and go on with my application. As the glass tube serves also as a kind of probe with which to detect the denuded bone, I am thus enabled to judge of the condition of the bone every time I apply the acid. Where I find it undesirable to remove the polypus, especially when it has a broad base, I force my glass needle gently into the growth while forcing air into the tube, in order to prevent the tube from getting obstructed until I reach the bone, or its immediate neighborhood, and deposit the contents in that place. A very considerable shrinkage of the polypus takes place in a comparatively short time, after sufficient time has elapsed to allow a free inspection of the affected part, the application is repeated in intervals of one to two weeks or more, until the membrane and bone have resumed their normal condition. This will frequently take quite a long time, but any intelligent patient, especially after he has been through the mill of polypus extraction by snare and forceps, will prefer this method infinitely, as it is with the help of cocaine absolutely painless and entails no loss of blood whatever. As you are entitled to promise the patient a much better result by this method of treatment, you will find it worth your while to try it, provided you feel sure enough of your hand and eye to manipulate such a very delicate and fragile instrument as this little glass tube. Unless you do feel perfectly sure of yourself I would not advise you to attempt it, as the results might be disastrous.

Another kind of obstruction, about the origin of which I gave my views a little while ago, is the deflection of the septum, whose removal is, in my opinion, the cause of so much unnecessary bloodshed. I have seen people brought nearly to the brink of the grave from loss of blood caused by such operations on the nose in the hands of inexperienced and rash young specialists. It seems to me that a perfect mania for cutting and drilling and sawing has set in, and I for one wish to put myself on record that all this heavy surgical work is in a great many cases absolutely unnecessary. The nose is rather too delicate an organ to be submitted to such rough usage if there is any other means at hand to obtain the desired result. This we have in the application of electrolysis to the deflections, ridges, and spurs of the septum, whether they are bony or cartilagineous. I have not yet seen the case presenting such obstructions that I could not remove by electrolysis, and although the current is not entirely painless, cocaine will help to make it nearly so, and I have frequently applied it even to children of five or six years. I should recommend this method all the more in cases of small children, as they will submit to this treatment much more gracefully than to any other, even if it has to be repeated a number of times. In most cases, the obstructions in a child's nose will absolutely melt away after three or four applications, while, generally, considerable relief is experienced after the

first time. Among a number of cases on which I operated in this manner, I recall one which presented a complete obstruction of the left nostril, so that the patient was absolutely unable to draw air through it or expel it at any time. This I attacked with my electrolytic needles, and had the satisfaction, after about six months treatment in bi-weekly intervals, not only to get a clear breathing space, but also sufficient room to inspect the nose as far as the post-nasal cavity. There was never a drop of blood lost, the patient never had at any time any inconvenience from it, and I suppose you will agree with me that even if the operation takes longer time, it is much safer and fully as sure as any other. I almost without exception use the bi-polar needles and a current of from ten to fifteen milliamperes with grown people—with children less—for about ten minutes, or as long as the patient will hold still and does not have to sneeze. As the handles supplied by the instrument-makers are too clumsy and heavy, I have had a handle constructed for the purpose, and can recommend it as a very useful and inexpensive little instrument. It is immaterial what battery is used, but one must be sure to have one that works perfectly, so that the current never gets interrupted, and which is provided with the milliampere-meter and rheostat.

I have wished only to give a resume of my views on this subject, and I conclude with an appeal to the general practitioner never to neglect a slight cold in an infant, but to use the nitrate of silver applications described above, and he will find that there will be fewer cases of chronic catarrh—and less use for specialists.

CORRESPONDENCE.

PRACTICAL "ETHICS" AS SEEN BY A CHEMIST.

EDITOR MEDICAL AND SURGICAL REPORTER:—

SIR:—We enclose you clipping taken from the *Western Druggist*. We hope you will give it a prominent place in your journal, as it is a matter of great importance to the profession.

Yours respectfully,

C. A. BATTLE, V. P.

St. Louis, Sept. 27, 1895.

[ENCLOSURES]

A TEST IN PHARMACAL "ETHICS."

"Mr. E. A. Schubert, of Fostoria, Ohio, in the course of a paper on pharmacal ethics, relates this account of a practical test of the professional integrity and competency of retail druggists in a given section of his State—a section, by the way, probably the equal in professional intelligence and honesty of the average community in Ohio and other States. "I espoused the thought," remarks Mr. Schubert, "that it would be a capital idea to write a prescription of easy composition and analysis, to see how many druggists would fill it correctly. I set to work immediately mailing to each of fifty physicians one of the prescriptions, at the same time asking him to write it as a prescription of his own, send some friend with it to his druggist to have it filled, a copy taken and returned to me with the compounded prescription. Out of the fifty requests sent out, I received thirty-seven answers. The prescription called for a three-ounce preparation, but placing them side by side I found twenty-one to be three-ounce preparations, seven were in size four ounces, while the rest ranged in size from five to eight ounces. It was to be an emulsion; nineteen were of that composition, the remainder were far from being true to name. In color, when correctly filled, it would be nearly white; of these twenty-two were true in color, while the remainder ranged from a steel gray to nearly all the known hues. The principal active ingredient was the acetate of morphine; thirteen only contained this, the remainder principally contained the sulphate. *Out of the entire number returned, eleven were found to be*

filled correctly. The remainder were base substitutions, either through ignorance or intention. Of the eleven that were correct, nine came from the hands of Ph. G's, the remaining two were compounded by old and reliable druggists in the city. Of the twenty-six not properly filled, we found five Ph. G's., the remainder were country druggists having very little experience in this line, and located, with but few exceptions, in towns of 6,000 inhabitants and less."

Can it be possible that this sort of recklessness and ignorance characterizes the profession in other intelligent communities?" — (*Western Druggist*, August, 1895.)

"Americal medical, pharmaceutical and trade journals, usually keen to detect a hidden advertisement in communications recommending new drugs and preparations when the same emanate from home sources, throw caution and ordinary business sense to the winds when it comes to recommending and puffing the very same class of merchandise, bearing a foreign name and recommended by foreign authority. The success of one or two German chemicals, the products of synthesis, opened the doors for a flood of antiseptins, antifebrins, antipyrins, and other "antis" ending in "ol" or "in". They come to us covered all over with patents—patents covering the name, the process of manufacture, the ingredients (save those which are kept absolutely secret), the modes of dispensing, the package, the label—in short everything that a patent can be made to cover. In a word, they are patent medicines in the very widest and strictest sense of the word; and yet they are received with enthusiastic welcome by press and practitioner, and are given, gratis and gladly, advertisements that money could not purchase for a home product, even though ten times more valuable, and not one-tenth so much patented.

"One of the proprietors of a drug of this sort, recently established in America, on being approached by the solicitor of advertising for an American medical journal, answered very curtly that, "*They didn't have to advertise their article. They got all the advertising they wanted for nothing, in the shape of laudatory communications in the reading matter of the medical journals*"; which was true, every word of it, and that in spite of the fact that it was a patent medicine. *The very journal for which the agent was soliciting, and in the very copy which he carried as a specimen, contained no less than six laudatory notices of the drug in question—one of them a communication covering several pages and heralding its virtues in almost every known form of disease.*

"Per contra, the same journal had enjoyed for years a handsome revenue from the advertisement of a reputable proprietary medicine house of this city, but had persistently refused to admit within its reading matter a little notice commendatory of one of its specialties, the formula of which was printed on every bottle.

"It is useless to plead that these imported patents are so valuable that the profession must have them and must use them, secret nostrums though they be. This is not true, nor is it true that the manufacturers over there are any more honest and frank as to the nature and origin of their wares than are American manufacturers of similar drugs. In proof of this assertion we call the attention of our readers to Gawalowski's merciless exposure of a new compound which is getting ready in Germany to make a descent on Europe and America in the style of its predecessors—the antiseptic kreolin, of the wondrous value of which the advance guard of certificates have already commenced to appear in our journals. Will the latter be warned in time, or will they swindle themselves out of thousands of dollars by giving it the usual American welcome and gratis advertising."—(*National Druggist*, May, 1888.)

"The present so-called ethical views held by our medical men really constitute a barrier to our scientific progress. They continue to act against our American chemists, and in the meantime prescribe freely the German patented articles. Many of our prominent physicians are prescribing freely German patented articles, why should they object to prescribing a really meritorious article if discovered and patented by an American chemist?"—(*Pharmaceutical Era*, March, 1889.)

"Prior to 1888 none of the above mentioned parties advertised in medical journals."

"The difference between a *patented* and a *trade-marked* proprietary article is akin to the gulf between black and white. Yet there are people—competent to understand—who will not admit the difference, and some of these use their opportunities to condemn both kinds indiscriminately in speech and in print.

"Patented products—including exclusively the definite chemical products of recent introduction — are proprietary only for a limited term of years, and on expiration of the patent-right, become the free property of the world. Examples: Salicylic acid, chloral hydrate, etc. now free; antipyrine, sulphonal, chloralamid, piperazine, etc., which will be free in from five to ten years.

"These products are of known chemical constitution; any chemist can make them, and their purity and constant characteristics can be estimated by tests —which are partially official in European pharmacopeias. There is no secret about these products, and even the proprietary names applied to them become free simultaneously with the expiration of patent rights.

"Trade-marked goods are perpetually proprietary; as long as property is secure under "common law" principles, the owner of a trade-marked product (such as sapolio, listerine, etc.), his assigns, heirs, etc., will own the name; the composition of the product thus protected may be changed at will—although, possibly, no radical changes are ever made in successful articles of this class.

"Anybody can look through a millstone if a hole penetrates it; we have here supplied the hole—but the people above referred to will probably not care to look; "there are none so blind as those who will not see."—(*Notes on New Remedies*, Oct. 1895.)

Announcement.

To the Editor of the Medical and Surgical Roporter:—Will you kindly announce that the following constitute the Business Committee for the next meeting of the State Society, to be held in Albany, during the last week in January:

Dr. H. R. Kopkins, Buffalo, Chairman; Dr. Nathan Jacobson, of Syracuse, and Dr. J. M. Winfield, of Brooklyn.

Members desiring to present papers are requested to promptly notify the Chairman of this committee.

I have also pleasure in making the preliminary announcement that addresses have been promised by the following prominent outsiders: Professor Wm. Pepper, of Philadelphia; Professor Jas. H. Etheridge, of Chicago, and President Eliot, of Harvard University. who will speak on the subject of "Medical Education of the Future."

By giving these items place, you will increase the interest in the next meeting and tend to make it more successful.

Very respectfully yours,

Roswell Park,

President Medical Society State of N. Y.

Business Change.

Editor Medical and Surgical Reporter.

Dear Doctor:—The firm of A. L. Hummel, M. D., formerly located at 257 S. Fourth St., Philadelphia, has changed its name and address to the A. L. Hummel Advertising Agency, 108 Fulton St., New York.

Please note this change of address and oblige, Yours very truly,

A. L. Hummel Advertising Agency.

New York, Oct. 11, 1895.

Treatment of Snakebite by Calcium Chloride.

Phisalix and Bertrand, at the Académie des Sciences (*Sem. Méd.*, June 19th), report the result of experiments with chloride of calcium in cases of snakebite. Its therapeutic action is not, as thought by Calmette, due to formation of some substance neutralizing the poison, nor to its entering the circulation and there destroying the poison as it would in a test tube, but depends simply on its local effect; it destroys the poison locally, and causes the tissues to slough, and so prevents absorption of the toxic material. Hence they conclude that the injections of calcium chloride must be made deeply at the actual spot where the fangs entered, and that they are useless if made in any other part.

THE MEDICAL AND SURGICAL REPORTER

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PHILADELPHIA, SATURDAY, OCTOBER 19, 1895.

EDITORIAL.

LOUIS PASTEUR.

"One of the few, the immortal names, that were not born to die."—*Halleck.*

"No true and permanent fame can be founded, except in labors which promote the happiness of mankind."—*Sumner.*

"When a man dies they who survive him ask what property he has left behind. The angel who bends over a dying man asks what good deeds he has sent befere him."—*Koran.*

"Everywhere in life the true question is, not what we gain, but what we do."—*Carlyle.*

Died, of uremia, September 28th, 1895, at Garches, in the city of Paris, M. Louis Pasteur, Member of the Institute of France.

Such was the brief notice of the passing of one of the most noted scientists of the age.

Louis Pasteur was born at Dôle, Jura, on December 27th, 1822. He commenced his classical studies at Arbois College, and subsequently studied at Besancon, where he obtained his degree of Bachelier-ès-Dettres, and became an instructor. In 1842 he entered as a candidate for the École Normale of Paris, but, passing only fourteenth in this list, he devoted another year to study, entering in 1843 as fourth amongst the aspirants. Already he had begun to devote himself to chemistry, and now, under Dumas at the Sorbonne, and Balard at the École, this study absorbed a large portion of his time. Under Delafosse he became a proficient in molecular physics also, and, while listening to this lecturer, struck upon the ideas regarding dissymmetry which at a later period of his life he developed at great length. In 1847 he took the degree of Doctor, and in the following year was appointed Assistant Professor of Physics at the Faculty of Sciences at Strassburg. At the end of 1854 he was entrusted, as Dean, with the organization of the newly-created Faculty of Sciences at Lille. Three years later Pasteur returned to Paris, and was ap-

pointed Director of Scientific Studies of the École Normale Supérieure, which post he held from 1857 to 1867. In 1856 the Royal Society of London awarded Pasteur the Rumford Medal for his researches relating to the polarization of light. He was decorated with the Legion of Honor on August 12th, 1853, was promoted to be an officer of that Order in 1863, and a Commander in 1868. In December, 1863, he was appointed Professor of Geology, Physics, and Chemistry at the École des Beaux-Arts, and in 1867 Professor of Chemistry at the Sorbonne, which latter chair he occupied until 1875. In 1862 he was elected a member of the Académie des Sciences (mineralogical section). Honored in 1868 by the Medical Faculty of the University of Bonn with the degree of doctor, he returned the diploma after the Franco-German war. In 1869 he was elected one of the fifty foreign members of the Royal Society of London. He became an Associate of the Académie de Médicine in 1873, was elected member of the Académie Francaise in 1881, in succession to M. Littré, and was received on April 27th, 1882. The following year Oxford University conferred upon him the honorary degree of Doctor of Science. In 1887 he was unanimously elected Perpetual Secretary of the Académie des Sciences, replacing M. Vulpian, but, owing to his health and the pressure of scientific labors, he resigned the post two years later, and was made an honorary Perpetual Secretary.

Pasteur's earlier scientific investigations were in the domain of molecular physics and chemistry, and as the result of these investigations he demonstrated that the products of inorganic nature, whether mineral or artificial, have never yet presented molecular dissymmetry; on the other hand, the substances which exert the greatest influence in vital manifestations, which are present and active in the seed and in the egg at the moment of the marvelous starting of animal and vegetable life, all do present molecular dissymmetry. This dissymmetry signifies that the molecules have like parts oppositely arranged. This he held to be not true of all inorganic things, but to be true of everything in connection with sprouting grain or developing egg. He claimed that molecular dissymmetry is the naturally sharp line of demarcation between the chemistry of organic and inorganic nature.

He was diverted from this field of investigation to the study of fermentation. At that time scientists regarded fermentation as a phenomenon preliminary to, and initiating the processes of decomposition and disintegration. But the word was merely a name for a mystery which was explicable only by theory.

Some explained the cause of fermentation to be contact with the oxygen of the air; others made it depend on the presence of the ferment, an albuminoid substance known as catalytic, the most common example of which is yeast; while the prevalent theory was that of Liebig, that contact with air is necessary to give the yeast its activity. Pasteur, however, demonstrated that it is caused by a living organism.

The Lancet (October 5th, 1895), in an editorial review of the great scientist and his work, says:—

His early physical and chemical training developed in him an accuracy and a wealth of experimental resource without which little of his great work could ever have been accomplished; and his experiments on the tartrates and paratartrates, commenced when he was a young man, little as they seemed to bear on his after-work, really formed the basis on which most of his biological experiments rested. He was struck by the fact that during the process of fermentation of ordinary dextro-tartrate of ammonia in a solution containing organic matter, a distinct micro-organ-

ism made its appearance. Then, too, he had been able to break up paratartaric acid by the addition of green mould, in the presence of inorganic crystalline salts such as phosphates and salts of ammonia only; this was accompanied by the disappearance of the dextrotartaric acid and an increase in the number of fungi and bacteria in the fluid. Out of these experiments arose the controversy that raged round the subject of abiogenesis, and this was settled beyond dispute by experiments perfected by Pasteur, although he followed the lines of those instituted by Spallanzani and Schulze, when he showed that bacteria and fungi, though developing most readily in those solutions which contained organic matter, were, nevertheless, capable of growing and multiplying in fluids in which no organic matter was present, so that the theory that they were developed from the running together of albuminoid molecules was once and for all time laid to rest. He further showed that fluids containing organized nitrogenous matter might remain unchanged for an indefinite length of time, even under conditions which, on the old theory of biogenesis, should be most favorable to the development of organized living cells, if care were taken to previously destroy any living organisms which might be already present and to prevent the entrance of such organisms from without. From this point the transition was comparatively easy to the position that fermentation and putrefaction changes, which only supervened when certain kinds of micro-organisms were allowed to gain access to fluids containing nutritive materials, were really the result of the action during their life-history of such micro-organisms. His researches on fermentation in connection with French wines and his experiments with the mycoderma aceti soon convinced him that special kinds of fermentation were set up, given certain media, by different kinds of micro-organisms, each form having its own special fungus or bacterium.

The next step was the differentiation of a special etiological factor in the pathogeny of the silkworm disease, which at one time threatened to ruin the silk industry of France. He traced the "spot" disease or "pebrine" to the nosema bombycis, which had previously been described by Naegeli as small, glistening, oval corpuscles which lead a parasitic life in the silkworm at its various stages; and by appropriate treatment—the destruction of all silkworm eggs that were suspected of being unhealthy—he was able to assist the silk-growers almost to stamp out this disease. He went beyond this, however, for he showed how certain chains of micrococci in the alimentary canal of the silkworm gave rise to another disease characterized by a peculiar lethargy. By these two sets of experiments he laid the foundation of the germ theory of disease, which has since borne such abundant fruit in the regions of practical and preventive medicine. He demonstrated the fact that certain specific organisms endowed with definite morphological and physiological characters are capable, by their presence and by the action of their products, of giving rise to specific infective disease; he pointed out the special *rôle* played by certain definite organisms in the production of different kinds of fermentation, putrefaction, and disease; and, in fact, on his observations and ingenious experiments as a basis built up a theory of a living contagium, or rather brought it from a condition of chaos to a position protected from assault by a fortification of scientific proof. Instead of assigning to micro-organisms a general and common action in the initiation of the above processes, he alloted to each one its own special part.

Such specific micro-organismal action having been traced in one or two instances, it was a comparatively short step to the demonstration of an organized and living contagium in other specific infective diseases, and anthrax, fowl cholera, and a number of similar diseases were in turn studied, and with similar results. His next most important investigations were connected with the production of immunity by means of slight attacks of a disease set up by the use of a modified virus. His experiments on anthrax and fowl cholera may now be looked upon as classical, and there can be no doubt that, without his discovery of the action of specific organisms in the production of the sev-

eral diseases with which they are associated, the theory of toxines and antitoxines, which promises to play such an important part in the treatment of disease, could never have been advanced, or if advanced could never have been proved.

Pasteur's work in connection with hydrophobia marked another great advance on any of his previous work, in so far as he was able to prove that not only could disease processes be prevented by "vaccination" prior to the injection of the *materies morbi*, but that the progress of the disease might be cut short or aborted even when the vaccination was carried on only after the virus had been introduced into the body. Much is written about the want of success in a certain proportion of the cases that have come under Pasteur's method of treatment for rabies; but anyone who will dispassionately and without bias examine the statistics of the results obtained in the various antirabic institutes, and compare these with the statistics of the cases that have not been so treated, cannot fail to be impressed by the enormous difference in the mortality under the two sets of conditions. Without vaccination the antitoxic serum method of treatment could never have existed, and it may be confidently anticipated that in all those diseases in which there is a localized formation of a poison, which in turn appears to act specially upon certain tissues, an antitoxic method of treatment may ultimately be obtained. It will, however, be a long time before it is fully recognized how great has been Pasteur's influence on this work, not only during the time that he was actively engaged in experiment, but also through the counsel and criticism which he bestowed on the work of his pupils and colleagues during the later years of his life. Pasteur was always the head of the Pasteur Institute. Although he has not published a line since December 27, 1886—when he wrote his famous letter upon hydrophobia, which appeared in the first pages of the *Annales de l'Institut Pasteur*—his mind and hand may be traced, directly or indirectly, in every page of the nine volumes in which are recorded the work carried on in this Institute; moreover Listerism is the outcome of the application by a great surgeon to his own work of some of the principles which Pasteur enunciated, as a result of which surgery has been raised from the level of a mere handicraft to the dignity of a science.

Pasteur was a man of a century. He had a great mind and an infinite capacity for detail; he had great tenacity of purpose, though his horizon was limited by no narrowness of vision. That he was a true Frenchman goes without saying, but his discoveries belong to the world. No man has contributed so greatly to our knowledge of the fundamental principles that govern the course of disease processes, and few have had so little to retract of what they had published. Such a result could only be the outcome of accurate working, clear thinking, and lucid exposition.

It is interesting to note of such a man that his religion, his simplicity, and his affection for his parents and for his family were maintained unaltered in their purity through all changes and controversies. His was not the wisdom of the agnostic, but the faith of a clear-sighted man who, interpreting much through his grand intellect, was still conscious of a world beyond that which he had probed deeper, perhaps, than any of his fellows.

France may well mourn the loss of such a man; and all men, irrespectively of nationality, who have a love for truth and an admiration of directness of purpose and keenness of intellect, must mourn with her.

Epicystotomy without Siphon.

Polombieri (*Gaz. degli Osped.*, June 8, 1895) reports a case of vesical calculus in a boy aged 8, in which he removed the stone (weighing about 8 g.) through a suprapubic incision. Having opened the abdomen, he fixed the bladder to the abdominal walls by two catgut sutures before incising the bladder. After removing the stone he sewed the bladder up with four catgut sutures. On testing its continency, a few drops were found to exude. One of the sutures fixing the bladder to the abdominal wall was left in. The abdominal incision was then closed, no drainage being used. A catheter was fixed in the bladder through the urethra, and the bladder washed out with boracic solution every three hours.

ABSTRACTS.

MEDICAL EDUCATION IN AMERICA.

Dr. John Madden, (*New Science Review*, October, 1895,) writes:—

The President, in his last annual message to Congress, recommended the establishment of a National Public Health Department in the following language:

"I am entirely convinced that we ought not to be longer without a National Board of Health or National Health Officer charged with no other duties than such as pertain to the protection of the country from pestilence and disease. This would involve the establishment, by such board or officer, of proper quarantine precautions, or the necessary aid and counsel to local authorities on the subject, prompt advice and assistance to local boards of health or health officers in the suppression of contagious diseases, and, in cases where there are no such local boards or officer, the immediate direction by the National Board or Officer of measures of suppression, constant and authentic information concerning the health of foreign countries and all parts of our own country as relating to contagious diseases, and consideration of regulations to be enforced in foreign ports to prevent the introduction of contagious diseases into our cities, and measures which shall be adopted to secure their enforcement."

Equally with the right of enacting sanitary laws is the right of the General Government to provide for the education of physicians, to say what shall be the minimum of attainments before the degree of Doctor of Medicine shall be conferred upon any one who wishes to practice medicine and surgery. With this matter, however, the General Government has done nothing, and the State but little. Almost any association of individuals can obtain a charter from an accommodating legislature authorizing the establishment of a "medical college," and the process of manufacturing practitioners of medicine begins forthwith. There is no system of censorship, no commission of education, to say what the test by which the fitness of the teachers of this new institution shall be judged, what the nature and extent of its laboratory facilities, of its hospitals for the bedside demonstration of disease phenomena, nor what shall be the preliminary education of its students. In fact, it may be and often is a mere business enterprise gotten up for the purpose of advertising a few ambitious men of rather doubtful ability; while the education of medical men is a secondary consideration. No matter how illy prepared the candidate may have been upon his entrance into "college," and no matter how short or superficial the course of instruction may have been, a diploma from an institution of this kind entitles him to the protection of the law, and qualifies him to give expert testimony upon any subject in any way related to medicine or surgery. In some States there are Boards of Medical Examiners whose authority is necessary to legalize a diploma; but even in these States the road to a doctor's degree is altogether too easy to travel.

The objection to schools of this kind, then, is that the training they give is insufficient. Their courses of instruction are too short and necessarily superficial. The preliminary education of their students is practically nothing; and no matter how earnestly they may work, they can acquire no thorough medical education. The most that can be done for them is to point out the way they should go to become competent physicians; and this competency must necessarily be obtained in practice at the expense of their patients if it is obtained at all.

It is not the purpose of this paper to discuss the merits of such institutions as are confessedly divorced from the teaching of medicine as an experimental science. It should be remembered, however, that their charters enable them to confer the degree of Doctor of Medicine, and their graduates are entitled to all the rights and privileges guaranteed by law to the medical profession. There

is no department of medicine or surgery which the exclusive "pathist" or "therapist" may not invade, assured of the law's protection in all the crimes he may commit in the name of medicine, and honored by the laity with the title of Doctor.

Earnest medical men recognize this lamentable state of affairs, and a good deal of effort is being made by individual colleges, and by some concerted action, to compel the better education of physicians. Better preliminary training for entrance, and more especially a longer course of study before graduation, have been adopted by many of the best schools; but the good which has come from this improvement is largely neutralized by the conduct of the scores of unworthy schools whose requirements for entrance and graduation are very easily complied with. "Students need have no fears of the entrance examination," may be read in the annual announcement of one of the schools of this class, and the language of others I have before me, though less direct, means the same. Students failing to pass the entrance examination of a school which is honestly trying to properly train young men and women for the work of the physician and surgeon, instead of increasing their capital stock of preliminary preparation, promptly seek the school whose ideals are not so high; and those who fail in the first or second year's work in the school of rigid discipline promptly carry their fortunes to the institutions which advertise that their requirements are easily met. It should be remarked here that the student is received in open arms by his new alma mater, and given credit for "all the courses of lectures" which he listened to in his former college, whether he learned anything from them or not. The most that is required of him is a certificate from the secretary of his former college, simply stating that he was a student of that college for the time the courses were given. "I'm going to leave this —— school," said a young man to the writer once after an examination, "and I'm going to a school in ——, they will graduate a man there who could not pass a 'quiz' here." The speaker had been a student of the school he anathematized two years. He had been admitted on a country district school teacher's certificate obtained in one of the "back" counties of the Southwest. He was plainly and picturesquely unfit to begin the study of medicine, and it would have been manslaughter to grant him a license to practice. He went to the institution that made graduation easy, and probably secured what his ambition craved; for his second choice has the reputation of never "plucking" a man. A few months ago a graduate of this same school was put upon the witness stand in a court in Wisconsin to give expert testimony as to the insanity of a man charged with murder. He said something about the prisoner having had inflammation of the optic nerve. When asked to describe in full the phenomena of this condition, he said it was "a kind of weakness of the nerve," and here his information and descriptive powers failed.

Another school of this class is responsible for conferring the degree of Doctor of Medicine upon a man of whom the following statements are true. He was so totally lacking in preliminary training that he could not write the simplest English intelligently. He once asked the writer of this article to dictate, and he would write, a certificate setting forth that a certain person had been injured and was unable to appear in court. Glancing over what he had written, the first line read, "To whome it may consern." Further on in this choice bit of manuscript was the word "torge." What did this mean, this t-o-r-g-e? "Why," said this genial ignoramus, "don't you know what torge is? when you go nearer anything." He meant "toward." This man attended a medical college five months. He had a family to support and no more money to spare for an education at that time. He then obtained employment as a street car conductor, in which occupation, according to his own admission, he was engaged continually for a little more than seven years. He then found himself possessed of sufficient funds to enable him to attend another five months in the same "college," at the end of which time he received a diploma and began to practice medicine. The man afterward attended one of the bet-

ter schools for a period of four months, and a diploma of that honorable institution now hangs on his wall. This diploma, however, does not keep him from committing offenses in the name of medicine.

Dr. F. W. Reilly, of Chicago, in compiling some statistics relating to medical colleges in the United States and Canada, received the following letter from Yale University. I give the letter in full because it accurately portrays what the best medical schools are trying to accomplish. The figures show sixty students in the first year, twenty in the second and only fourteen in the third, says the letter: * "You will note that there has been a larger number of students in the first year than in the second or third. This has been due to the fact that a very considerable number of students fail at the end of the first year, and then they have to repeat their work. Our entrance requirements are placed at the high school grade in the subjects in which we require examinations, and these requirements are well enforced, yet we have this large percentage of failures of men who cannot stand the work of our first year. I do not know whether this is the experience elsewhere but certainly our matriculation requirements are higher than the average of the country, and the whole thing seems to me to be a strong argument for the necessity of a higher grade of matriculation. I have felt for some time that this matriculation requirement was more needed in this country than the increase of time of study; that is, that three years with well prepared students would be better for the profession than a larger number of students kept at their work a year longer. This opinion, however, does not seem to be the one which has prevailed. We have delayed starting the four years' course, hoping that there would be a general increase in matriculation requirements first, and while we do not altogether give up the hope of increasing matriculation examinations, we are about to adopt a four years' course in conformity with other schools of the better class." It is evident that those of the first year students who are obliged to repeat their work do not do so in Yale, else there would be no such constant difference in numbers in favor of the first year group.

Another letter from a well-known school, contributed to the same article, says, "small attendance in our second course is attributed to the fact that those who attended with us in 1893–4 can graduate in ———— medical college at the end of this term, while we would require them to attend to the end of 1895–6."

The author once heard the dean of a medical faculty severely censure the professor of physiology of the same faculty because thirty students out of one hundred and twenty failed to pass the examination in that study. It was admitted that this teacher had unusual ability in clearly presenting the subject he taught, and that he had made valuable contributions to the literature of physiology. It was also admitted that he asked only such questions as should be answered by the student of average attainments. The plea was that such examinations tended to drive away many students who would seek their diplomas in less worthy schools, and that the cause of medical education would thereby suffer. In other words this college wished to raise the standard of education, but its own preservation warned it to do so cautiously; the examinations were, therefore, to be such as suited the capacity of the students, regardless of their acquaintance with the subject. This school, by the way, was one of the pioneers in adopting a three years' graduated course of study, since extended to four years. That it has not shrunk from its duty to higher medical education is evident from the fact that its first-year class has one hundred and sixteen students, while its fourth-year class has sixty-five. The weeding-out process still continues, but it is to be observed that even this school could not live up to its ideals in face of so much unworthy competition.

To cite any number of cases illustrating the harm done by the actual sacrifice of life and health to the ignorance of improperly educated physicians is unnecessary. Every qualified intelligent man who has been in the practice of medicine for ten years could contribute a

*Journal American Medical Association, January 12, 1895.

good-sized volume on the subject. It is not to be expected that any system of education will give unerring judgment and invincible skill. The sins here condemned are those which are born of that lack of knowledge which every man of ordinary intelligence would be able to acquire in a proper medical training. For obvious reasons, too, it is not possible to be specific as to those schools which are lamentably lacking in the instruction they give, but they are known to physicians, and their name is legion.

There are at the present time about eighteen thousand students in the medical colleges of the United States. Of this number about five thousand (five thousand and fifty-two) are enrolled in schools which have students in four-year classes; but only four hundred and seventy-five are doing fourth-year work. Five other schools having an attendance of five hundred and fifty-nine students have established four-year courses; but, as yet, have no students doing fourth-year work, and three schools having an aggregate attendance of one thousand and sixty-three announce that a four-year course will be established next year. We have then six thousand six hundred and seventy-four students attending schools which have established a four-year course of instruction, or have decided to do so next year, about thirty-one per cent. of the entire number. There are many excellent schools which still have courses of instruction extending over a period of only three years; but many schools graduate their students after two years or "two courses of lectures." The fact that a school has a course of study extending over a period of four years, ought, perhaps, to be taken as *prima facie* evidence that it is giving its students a good medical education, and a glance at the list of those schools tends to confirm this evidence; but of the sixty-eight or sixty-nine per cent. which are found in schools outside of the four-year class, it is pretty safe to say that at least one-half, or thirty-four per cent. of the whole number, are not receiving adequate medical training.

How have the efforts upon the part of the best schools to elevate the standard of medical education been met by those seeking to enter the profession? The evidence is not reassuring. While there is an increase of nearly twelve and one-half per cent. in the number of students enrolled in 1894 over those of 1893, yet there is a decrease of nearly three (two and seven-tenths) per cent. in the number enrolled in the fourth-year classes. (These figures for schools in both United States and Canada.) Commenting upon Dr. Reilly's article above referred to, and from which all the above statistics are taken, the editor of the *Association Journal* remarks: "The advance that has been made in the last decade is not so apparent as to be very gratifying to the friends of higher medical education generally, or to the medical profession."

The establishment of a uniform and thorough system of medical education can never be accomplished by the medical profession alone. Those schools which recognize the needs of a higher medical education, and are conscientiously training young men and women for the practice of medicine and surgery, will draw to themselves earnest and conscientious students who seek to prepare themselves for their life work as a matter of principle. So long, however, as medical schools are regarded from a commercial standpoint, as an investment which shall pay a dividend either in fees from their students or by advertising their promoters, and are untrammeled in their conduct by State or National authority, and so long as students can be found who regard a "diploma" as so much capital invested, there will be unworthy schools and unworthy physicians. Unfortunately, too, statistics show that the latter class has about one-third of the whole number of students, and that the ratio is increasing.

The remedy for this condition can only be found in the General Government assuming control, not only of the sanitary affairs of the country, but of all matters relating to the education of physicians. The keeping out of contagious diseases, and adopting measures of controlling the same when within our borders, are certainly not more important than properly educating our physicians. How many lives are annually sacrificed through the ignorance and incompetence of illy-prepared doctors? Who will deny that the number of these victims is greater than those of any pes-

tilence which we strive so hard to keep from our midst? Let there be established as free as possible from political control a department or bureau of public health. This bureau should have full power to formulate a course of medical instruction; to say what the educational requirements shall be for entering; what shall be the nature and extent of laboratory work, and what the facilities for hospital instruction. There should also be provision made for examining graduates by the same authority, before a license is given to the practice of medicine. This system of education should, of course, be uniform for all medical schools, and work done in one school should be recognized and given full credit in every other school. This system would be of great advantage to the student who, with a view of engaging in specialized lines of practice, might wish to take certain portions of his course with such instructors as have shown the greatest ability in the work in which he is particularly interested, or in the hospital or laboratory most favored by locality to offer the best possible field for practical research.

It is scarcely necessary to enter into minute details of the scheme above outlined. They could easily be suggested. A National Board of Health might be formed, for instance, of the Presidents of the State Boards of Health, and the President of each State Board of Health might sustain the same relation to medical education in his own State as the Superintendent of Public Instruction sustains to the public schools of the State. Going a step further, the fitness of all candidates for positions as teachers should be passed upon by the National Board, as well as the granting of licenses to practice medicine. To facilitate the performance of its duties, this National Board of Health should be divided into committees, and to each committee be delegated the work of considering measures of a certain class, the same as is now done in legislative bodies. Local committees or boards could be formed, for instance, of the Presidents of three neighboring State Boards of Health for the purpose of examining candidates for licenses to practice, and for the performance of such other duties as the National Board of Health might see fit to impose.

Objections to this plan would be raised upon the ground that it would create a hardship for those who wish to study or to practice only "special systems of medicine," the various "pathists," "therapists," "scientists," "curists," the one-sided, the narrow, the deluded, and the dishonest, all of whom stand equally as "doctors" in the eyes of the laity. These objections should not be considered valid if it is granted that the Government has the same power to protect the lives of its subjects against the ignorance, incompetence and dishonesty of medical practitioners as it has against the invasion of contagious disease. Medicine is no longer a speculative science. It rests upon a broad and firm foundation of experimental knowledge, of demonstrable knowledge. He who would study it must come prepared with a liberal education, with a mind trained for observation, for investigation, and with a power to formulate general truths when the evidence is placed before him. Has not the Government the right, for the protection of its subjects to demand that this preparation shall be made, and that this demonstrable knowledge shall be acquired, before the degree of Doctor of Medicine shall be conferred? If any one who has acquired this knowledge wishes to wed himself to any therapy, to any special method of treating disease, let him stand before the people in his own light. He shall not announce himself to the public as a Doctor of Medicine alone, but shall always be compelled to use the name of his exclusive system in connection with his legal title. Then, and only then will he cease to be getting money under false pretenses, and his short comings will not be charged to the shame of an honorable and responsible college.

Foreign Bodies in the Uterus.

Albertin (*Provence Med.*,) collects 24 cases. Two are original. In one case a laminaria tent remained nearly eleven months in the uterine cavity, and in the second a carbon rheophore was left behind, and did not come away for a week. In neither instance was there any symptom of irritation, and both the tent and the rheophore were expelled spontaneously.

LIBRARY TABLE.

"TEXT-BOOK OF DISEASES OF THE KIDNEY, AND URINARY ORGANS," by Prof. Dr. Paul Fürbringer. Translated from the Germans with annotations, by W. H. Gilbert, M.D., with commendatory letter from Sir Thos. Grainger Stewart, M.D., F.R.S.E. In two volumes. Vol. I. London, H. K. Lewis, 136 Gower Street, 1895.

The present volume is a valuable addition to the works already upon the market dealing with urinary diseases, and the reputation of Prof. Fürbringer as an able writer in the various departments of medicine, particularly with diseases of the kidneys, establishes an enviable place for the book among its many peers. Some of the views adopted are, perhaps, at variance with other well-known writers, but not in sufficient degree to render the product appreciably less valuable, and the text shows the author to be a hard worker in the lines of practical research.

INTERNATIONAL CLINICS :—A quarterly of clinical lectures on Medicine, Neurology, Surgery, Genito-Urinary Surgery, Gynecology, Obstetrics, Ophthalmology, Laryngology, Pharyngology, Rhinology, Otology, and Dermatology. Edited by Judson Daland, M.D., Philadelphia ; J. Mitchell Bruce, M.D., F.R.C.P., London ; David W. Finlay, M.D., F.R.C.P., Aberdeen, Scot. Vol. iv., Fourth Series. Philadelphia, J. B. Lippincott Co., 1895.

International Clinics is always interesting reading and the accepted clinical lectures are well chosen by the editors. This volume is full of pregnant topics and will meet the most varied tastes and specialties. The names of Sir Dyce Duckworth, Prof. Ernest Leyden, Horatio C. Wood and Reginald H. Sayre, as among the many contributors, need only to be mentioned to suggest the value of the work. H. C. Wood's article on "A Case of Pacchymengitis following Thermic Fever" is interesting reading and highly characteristic of this most able clinician in its terseness and clearness of style. Thos. J. Mays gives a practical talk on the management of the consumptive, in which he lays great stress on "building up the exhausted energy," and warns us against relying solely upon drugs and fresh air. Reginald H. Sayre gives a well-illustrated article on "Lateral Curvature of the Spine," and Sir Dyce Duckworth treats of "Jaundice from Obstruction in the Common Bile-Duct" in an easy fluent style. Many other attractive lectures might be referred to, but these may be considered as representative. Altogether, the volume is comprehensive in its scope and preserves the scholarly tone accorded its predecessors.

THE PHYSICIAN'S GERMAN VADE-MECUM :—A manual for medical practitioners, for use in the treatment of German patients, by Dr. Richard S. Rosenthal. Vol. I., Gynecology and Obstetrics ; Vol. II., General Practice. Chicago, The Rosenthal Publishing Co.

These books are intended as an aid to physicians in the treatment of their German-speaking patients, and contain most of the questions likely to be asked in the intelligent treatment of the diseases met with in general practice, as well as in the specialty of gynecology and obstetrics. The author's established reputation as a teacher lends additional value to the work.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

Treatment of Epilepsy, with Especial Reference to the use of Opium.

Joseph Collins, (*Medical Record*). About a year ago, Professor Flechsig, of Leipzig, published a short article on a new method of treating epilepsy, which, in his hands, had given most gratifying results. It consists in administering opium in the shape of the extract or pill in large doses for a period of six weeks. The dose of opium in the beginning is from one-half to a grain, and this is gradually increased until the patient is taking about fifteen grains a day in doses of from one to four grains. The maximum dose is reached by the end of the first week. At the end of six weeks the opium is stopped suddenly, and for it bromide of sodium, or potassium, in doses of one-half drachm, four times daily is substituted. After these large doses of bromide have been kept up for some time, the dose is gradually decreased until the patient is taking less than two scruples a day. The sudden cessation of administering the opium and the exhibition of the bromide is quite essential.

Notwithstanding the fact that no sinister results accompanied the administration of opium in such

large doses, still, it should be stated that anyone who would apply this plan of treatment must be watchful and scrutinizing, especially during the first week, until the patient becomes accustomed to the large doses.

The most satisfactory results were obtained in very chronic epileptics, and particularly those who were not responsive to large quantities of bromide. In epilepsy dependent on or associated with gross organic lesion of the brain the treatment seemed to give better results than in pure idiopathic epilepsy. By gross organic lesion is meant epilepsy associated with defective development.

The writer sums up his conviction as follows:

1. The plan suggested by Flechsig is not a specific in the treatment of epilepsy.
2. In almost every case in which this plan of treatment has been tried there has been a cessation of the fits for a greater or less time.
3. A relapse generally occurs in a period of a few weeks to a few months.
4. The frequency of fits after the exhibition of opium is, for the first year at least, lessened more than one-half.
5. The attacks occurring after the relapse are much less severe in character than those that the patient has been accustomed to having.
6. This plan of treatment is particularly valuable in ancient and intractable cases.
7. In recent cases of idiopathic epilepsy it cannot be recommended.
8. The opium plan of treatment is an important adjunct to the bromide plan as ordinarily applied.
9. The opium acts symptomatically and merely prepares the way for and enhances the activity of the bromide and other therapeutic measures.
10. This plan of treatment permits the use of any other substances which are known to have a beneficial action in epilepsy.

Acute Arsenical Poisoning With Subsequent Multiple Neuritis.

Dr. R. Meirowitz reported a case at a recent meeting of the New York Neurological Society of a young man of 19, who, by mistake, swallowed about a teaspoonful of arsenious acid. Perceiving his mistake, he immediately produced not very copious vomiting by thrusting his finger into the pharynx. Three hours later he had pain in the stomach, vomiting, bloody urine, weak pulse, and intense thirst. These conditions lasted about six days, and there was constipation. On the second day, vision and hearing became impaired; there was tinnitus and bleeding from the ears, followed by hemorrhage and pus. On the fourth night delirium, with hallucinations of sight. The tongue was blistered and swollen; the lips, eyes, and face edematous. Had headache and collapsed the seventh night, but rallied next morning. The ninth day the stomach tolerated a little food, and on the eleventh day he left his bed, having lost twenty pounds. The third week he developed typical neuritis of rather severe form in both legs.

The Treatment of Fracture of the Radius.

Hennequin summarizes the concclusions of his study on this subject In the *Revue de Chirurgie* as follows:

1. That it is necessary to reduce the fracture of the lower extremity of the radius.
2. That it is necessary to maintain reduction by means of a suitable apparatus, leaving the fingers entirely free.
3. That the patient must use the hand as soon as possible after union.
4. That massage fulfills but one indication, and must not be employed as the only means of treatment, except in those without displacement. Having no other pretention than the restoration of function after consolidation, its *rôle* becomes more restricted if the fingers are left at entire liberty during the treatment.

Abnormalities in the Chemistry of Gastric Digestion in Cases of Chlorosis.

Hayem examined 72 patients (67 women and 5 men). He found excess of pepsin in the contents of the stomach, 36 times; hyperacidity, 6 times; deficiency of pepsin, 28 times; complete absence of pepsin in no case; normal chemical conditions in 2 instances. In 3 cases the deviation from the normal was insignificant, although the dyspeptic symptoms were marked. In 36 cases there was distinct acid fermentation; in 34 cases there was none.

These figures help to explain the great frequency of dyspepsia in chlorosis. A closer connection between the intensity of chlorosis and that of the associated dyspepsia cannot be demonstrated, for one often sees severe chlorosis with but slight dyspeptic symptoms, and conversely. Hayem considers the common method of feeding chlorotic patients who have dyspeptic symptoms with iron, arsenic, quinine, and other irritating substances, as altogether hurtful, and calculated to produce serious disturbances in the stomach, and in particular to cause gastric ulcer. Treatment ought to begin, as in other forms of dyspepsia, with simple, properly-regulated diet — *Deut. Med. Zeit.*

Hydatid Cyst of the Liver Infected by the Pneumococcus.

Galliard mentions the case of a patient under his charge who was admitted with symptoms pointing to intestinal obstruction. These symptoms soon passed off, but the liver remained large. An exploratory puncture yielded pus without admixture of bile; and pneumococci, without other organisms, were found in the pus. The cyst, which was produced by hydatids, was incised, and the patient recovered.—*Gaz. Med. de Paris.*

Chorea Rapidly Cured by Electro-Static Baths.

By Regnier (*Archives de Neurologie*). An attack of articular rheumatism occurred at the age of 7, and was complicated with endocarditis. The second occurred two years later, and was followed, after fifteen days, by a severe attack of chorea. Daily electro-static baths of 30 minutes' duration were ordered on the third day of the disease, and continued for three weeks, afterwards being gradually dropped. The effect from the first bath was quite manifest, and each bath was followed by a progressive diminution of the choreic movements, and in two months recovery was complete.

Comparative Frequency of Fibro-Myomata at Different Ages.

Dr. Charles Greene Cumston, of Boston, in an article on "Parietal Fibro-Myomata of the Uterus," says:

"It is the prime of life that fibroids develop with the greatest frequency. Gusserow has collected 919 cases, as follows:

10 years	. . . 1	case of fibro-myoma.
14 "	. . . 1	" " "
16 "	. . . 1	" " "
17 "	. . . 1	" " "
18 "	. . . 3	" " "
19 "	. . . 8	" " "
20 to 30 "	. . . 156	" " "
30 to 40 "	. . . 357	" " "
40 to 50 "	. . . 338	" " "
50 to 60 "	. . . 36	" " "
60 to 70 "	. . . 12	" " "
70 and above "	. . . 5	" " "

"Winekel, with 527 cases other than those of Gusserow, gives the following table:

20 years	. . . 9	cases of fibro-myoma.
20 to 30 "	. . . 98	" " "
30 to 40 "	. . . 180	" " "
40 to 50 "	. . . 180	" " "
50 to 60 "	. . . 52	" " "
60 to 70 "	. . . 6	" " "
70 and above "	. . . 2	" " "

"From these tables we see that the maximum of frequency is between 30 and 50 years, and from this period the frequency of the affection decreases progressively toward the two extremes of life.

"Unmarried life, abstention from coitus, sterility, does not seem to exercise any influence upon the production of this neoplasm contrary to the affirmation of certain authors, for they are met with more frequently in married women. Dupuytren was of this idea. Of 58 cases of fibro-myomata collected by him, 54 were married or at least not virgins. Of 51 cases nine women had not borne children. Among 959 cases mentioned by Schroeder, Hewitt, Marion Sims, More-Madden, Engelmann and Gusserow, we find 672 married women, 287 unmarried, but not all virgins; and of the 672 married subjects, 464 were mothers."

SURGERY.

Radical Cure of Hernia.

Fergusson (*Annals of Surgery*, May, 1895), says that an essential defect in many operations which are performed for the cure of hernia is removal of the sac. He advises that for the radical cure of inguinal hernia the following operation should be adopted. An incision 3 to 4 inches long is made parallel to Poupart's ligament, over the inguinal canal to the pubic spine. All structures between the internal and external abdominal rings and above the canal are divided. The sac is then dissected out, opened for inspection, and its neck loosened from its attachments. It is then several times transfixed in a proximal direction with a stitch which has been firmly secured to the distal end, so that when the proximal end is pulled on the sac is thrown into folds. Finally, the needle which carries the thread is passed through the abdominal wall, transfixing all the structures in front of the superitoneal tissue, and emerging 1 inch above the internal abdominal ring. Before fastening the sac it is best to raise the spermatic cord and remove any supernumerary veins, or, if this is not requistite, to make a circular incision through the fascia of the cord. The suture which folds the sac is now pulled tightly, fastened to the external oblique muscle, and the sac adjusted in proper position. Next the fascia transversalis, from the pubic spine to the internal abdominal ring, is sutured with three or four invession sutures. The inversion suture is inserted by piercing the deep fascia parallel to Poupart's ligament in two places from without inward with the first bite of the needle. The needle is drawn through it, and the thread is carried across to the border of the conjoined tendon, where a similar bite is taken. The approximation of the muscular aponeuroses is then done with three or four mattress sutures from below upwards, in such a manner as to bring the lower and external structures —Poupart's ligament, fibres of the external oblique, internal oblique, and transversalis muscles —over and in front of the internal and upper structures—the conjoined tendon, external, oblique, and all beneath the cord. To complete the operation the cord is laid upon the external surface of the external oblique muscle and the skin sutured over it. The author recommends this method on anatomical and pathological grounds. He has used it only for one year, and hence sufficient time has not elapsed to enable him to speak of results. For the radical cure of femoral hernia the following operation is recommended: A skin incision is made parallel to Poupart's ligament, and half an inch above it. This allows the operator to reach the neck of the hernia with ease and accuracy; the scar will be out of reach of pressure or friction of the thigh, and it allows examination of the inguinal canal and rings. The sac is dissocted from the surrounding structures and opened; if any omentum is found it is tied with interlocking sutures and cut away, and the raw surface of the stump covered with peritoneum before it is replaced in the abdomen. The sac is now folded upon itself, and fastened within the aperture of the crural canal. When the sac is sufficiently large to close the internal opening of the canal, suturink of the pubic fascia to Poupart's ligament, and placing the falciform process in the external opening of the canal by means of inversion sutures of strong chromic gut or silk, is sufficient. When the sac is small, the hernial opening large, and Poupart,s ligament cannot with ease be approximated to the pictineal fascia, a periosteal flap may be utilized, or a flap of the pectineal fascia and muscle can be raised and stitched to form a buttress instead.

NEWS AND MISCELLANY.

Dr. Laurence Turnbull has removed to 255 South 17th Street, from 1716 Chestnut Street.

At a recent meeting of the Trustees of Jefferson Medical College, Philadelphia, the honorary degree of LL. D. was conferred on **Dr. John Collins Warren,** Professor of Surgery in Harvard University.

American Association of Obstetricians and Gynecologists at the late meeting in Chicago elected the following officers for 1896:

President—JOSEPH PRICE, Philadelphia, Pa.
First Vice-President—A. H. CORDIER, Kansas City, Mo.
Second Vice-President—GEORGE S. PECK, Youngstown, O.
Secretary—W. W. POTTER, Buffalo, N. Y.
Treasurer—X. O. WERDER, Pittsburg, Pa.
Place of meeting—Richmond, Va.
Time—Second Tuesday in September, 1896.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, UNITED STATES ARMY, FROM SEPTEMBER 22, 1895, TO OCTOBER 12, 1895:

A board of medical officers to consist of Colonel Charles H. Alden, Assistant Surgeon-General; Lieutenant-Colonel William H. Forwood, Deputy Surgeon-General; Lieutenant-Colonel David L. Huntington, Deputy Surgeon-General; Major Charles Smart, Surgeon; Major Walter Reed, Surgeon, is constituted to meet at the Army Medical Museum Building in this city on Tuesday, October 1, 1895, at 10 o'clock A. M., for the examination of candidates for admission to the Medical Corps of the Army.

Major Henry Lippincott, Surgeon, is relieved from duty at Fort Adams, R. I., and ordered to Fort Sheridan, Ills., for duty, relieving Major Alfred C. Girard, Surgeon. Major Girard on being thus relieved, is ordered to Fort Douglas, Utah, for duty, relieving Major Charles L. Heizmann, Surgeon. Major Heizmann on being thus relieved is ordered to Fort Adams, R. I., for duty.

Captain Richard W. Johnson, Assistant Surgeon, will be relieved from duty at Fort Huachuca, Ariz., upon the arrival there of Captain William J. Wakeman, Assistant Surgeon, and ordered to Fort Logan, Colo., for duty.

Leave of absence for one month, to take effect about the 5th proximo, is granted Major Joseph B. Girard, Surgeon, Presidio of San Francisco, Cal.

Major James C. Worthington, Surgeon, is granted leave of absence for three months on surgeon's certificate of disability.

Captain Guy L. Edie, Assistant Surgeon, is relieved from duty as assistant to the Attending Surgeon in the city of Washington.

First Lieutenant Frederick P. Reynolds, Assistant Surgeon, is relieved from duty at Fort Sam Houston, Texas, and ordered to Fort Clark, Texas, for duty, relieving Captain Benjamin L. Ten Eyck, Assistant Surgeon. Captain Ten Eyck, on being thus relieved, is ordered to Columbus Barracks, Ohio, for duty.

First Lieutenant William W. Quinton, Assistant Surgeon, will be relieved from temporary duty at Fort Logan, Colorado, to take effect upon the arrival there of Captain W. W. Johnson, Assistant Surgeon, and ordered to Fort Rily, Kansas, for duty.

Lieutenant Colonel Joseph R. Gibson, Deputy Surgeon-General, will report in person to the President of the Army Retiring Board at Washington Barracks, D. C., at such time as he may designate for examination by the board.

Lieutenant-Colonel John S. Billings, Deputy Surgeon-General, having served over thirty years in the army, is on his own application and by direction of the President, retired from active service, this date, October 1, 1895.

First Lieutenant Frank T. Meriwether, Assistant Surgeon, having been found incapacitated by an Army Retiring Board on account of disability incident to the service, is by direction of the President retired from active service this date.

Captain Henry P. Birmingham, Assistant Surgeon, is granted leave of absence for one month, to take effect upon the arrival at Fort Trumbull, Conn., of Captain Geo. E. Bushnell, Assistant Surgeon. Captain Geo. E. Bushnell, Assistant Surgeon, will proceed to Fort Trumbull, Conn., and report for temporary duty during the absence on leave of Captain H. P. Birmingham, Assistant Surgeon.

Leave of absence for one month on surgeon's certificate of disability, with permission to leave the limits of the department, is granted First Lieutenant Isaac P. Ware, Assistant Surgeon.

Leave of absence for one month to take effect when his services can be spared, with permission to apply for an extension of one month, is granted Captain Eugene L. Swift, Assistant Surgeon, Fort Yates, N. D.

Major Washington Matthews, Surgeon, having been found incapacitated for active service by an Army Retiring Board, on account of disability incidental to the service, is by direction of the President, retired from active service this date, Sept. 26, 1895.

Leave of absence for four months to take effect about Nov. 5, 1895, is granted Captain Thomas U. Raymond, Assistant Surgeon.

PROMOTIONS.

Major William E. Waters, Surgeon, to be Deputy Surgeon-General with rank of Lieutenant-Colonel, Oct. 1, 1895, vice Billings, retired.

Captain Louis S. Tesson, Assistant Surgeon, to be Surgeon with the rank of Major, Sept. 26, 1895, vice Matthews, retired.

Captain Edwin F. Gardner, Assistant Surgeon, to be Surgeon with the rank of Major, Oct. 1, 1895, vice Waters, promoted.

Captain Louis W. Crampton, Assistant Surgeon, promoted to be Surgeon with the rank of Major, Sept. 6, 1895.

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ORIGINAL ARTICLES.

SURGERY IN THE SWAMPS—A CASE OF SUPRA-PUBIC LITHOTOMY.

JAMES RIGNEY, M. D., RACCOURCI, LA.

J. R., white, aged eighteen years, consulted me for incontinence of urine with constant pain and discomfort in the genitals. The trouble was worse at night, as he would be required to rise a number of times to pass a small quantity of urine, for neglect to do so from fatigue was invariably followed by soiled bedding. A specimen of his urine, which he had brought with him, I tested with the following results: Color, straw; reaction, alkaline; sp. gr., 1015; albumin, a trace; sugar, none. Under the microscope, a drop of the sediment showed pus corpuscles, bladder epithelium, crystals ammonio-magnesium phosphates, octohedral crystals oxalate of lime, and a deposit of amorphous lime phosphates.

Suspecting stone from the history and the condition of the urine, I introduced without difficulty a Thompson stone-searcher into the bladder, and turning the instrument to the left, the characteristic "click" was audible to both the patient and myself.

The patient complained of feeling nauseated, so I withdrew the sound and requested him to return the following week for a more thorough examination. In the interval, to acidulate the urine, he should take the following:—

℞.

Bicarb. Sod.		drams, ii.
Phosph. Sod.		" iv.
Pulv. Acaciae, Acid Benzoic.	aa.	" ii.
Spt. Nitrosi dulc.		fl'd " iv.
Aq. Menth. Pip. q. s. ad.		fl'd oz. vi.

M. Sig. Tablespoonful, in water, morning, noon and night.

He returned the following week, and expressed himself as greatly benefitted by the medicine. I then made a more extensive examination with the sound, and discovered the calculus to be about the shape and size of an egg. The danger and necessity of an operation was explained to himself and family, but he declared death preferable to the tortures he had endured for the past twelve years.

Monday, September 16th, he came to my office, and after a preliminary hypodermic injection of morphia ¼ gr., atropia, $\frac{1}{150}$ gr., he was anesthetized with chloroform by Dr. E. H. Smith

and removed to a rear room. Pubes and abdomen were washed with a 1 to 1000 bichloride solution, shaved and rinsed with a solution of iodoform in ether, a Peterson's colpeurynter was introduced into the rectum and inflated with 8 ozs. of water. The bladder was washed out with a solution of borax, 10 grs. to 1 oz. of boiled water, then distended with about 6 ozs. of the same fluid, introduced through a silver catheter, which was plugged, and two turns of a rubber tube around the penis, secured by hæmostatic forceps, shut off any escape of fluid. His feet were then made fast to the table, and a three inch incision made in the median line above the pubes and carried in a few strokes to the junction of the recti muscles. I was sponging the orifice and seizing a number of bleeding points with the forceps, when the patient suddenly ceased to respire and his face rapidly became cyanosed. I immediately forced his jaws open with my left hand, and seized his tongue with a pair of forceps, while Dr. Smith tilted up the table. In a few moments he began to breathe easily, and the doctor resumed the administration of the anesthetic. The colpeurynter, having been emptied by contractions of the abdominal muscles, required refilling. I removed the forceps which had checked all oozing from the wound, sponged out the cavity and made a clean incision through the median line to the thin layer of tissue over the peritoneum. This tissue was picked up with the forceps, carefully incised, and, introducing the tip of the forefinger, the peritoneum was reflected back on the distended bladder. Passing a strong ligature through the upper portion of the organ, I steadied it with my left hand, and with the right hand cut downward with a bistoury a distance of 2½ inches. This was followed by a gush of fluid, through which I passed two fingers down to the base of the bladder, and felt the stone lying freely movable. Introducing a pair of dressing forceps I seized and extracted it with but little difficulty. Three sutures were next passed through the bladder walls, muscles and skin, on each side, to prevent infiltration of urine; two drainage tubes, joined about five inches from the lower extremities, were passed to the bottom of the bladder and brought over the pubes for drainage; catheter and colpeurynter removed, and the wound dressed antiseptically.

He reacted nicely, and for the first twenty-four hours nothing was given except a little water occasionally to allay thirst. At the end of that period I changed the dressings and washed out the bladder with a solution of 10 grs. of borax to 1 oz. of hot water. His temperature was 99½°; pulse, 84; respiration, 18. I began to administer nourishment in the form of 4 ozs. of milk every three hours. At the end of forty-eight hours (about noon) his temperature rose to 101¾°, but about 4 P. M. subsided to 99° in a mild perspiration. Believing malaria to be the cause of the rise in temperature, I administered 5 grs. of quinine, and continued to give 10 grs. daily until the seventh day. On the seventh day I removed the drainage tubes and passed a catheter. On the eighth day the patient sat in an easy chair for a short time until his bed was changed; and he continued to sit up every day until the thirteenth from date of operation, when he rose, dressed himself, and rode home in a carriage, a distance of eight miles.

He called to see me the other day (about the twenty-seventh since the operation), and reported the wound as entirely healed, and the urine as passing through its natural orifice. The calculus weighed 2½ ozs. and measured in long diameter 5½ inches, in short diameter 4½ inches.

Hydatidiform Mole and Malignant Deciduoma.

Fraenkel (*Archiv f. Gynäk.*) has recently added to our knowledge respecting the malignant changes which sometimes take place in the uterus after gestation. Undoubtedly malignant deciduoma is often, on clinical evidence, associated with hydatidiform mole. Small portions of a mole of this class usually remain behind after the greater part has been expelled. The superficial epithelial layer (syncytium) of the chorionic villi proliferates considerably when a vesicular mole develops. It is precisely from this abnormal development of epithelium that the cancerous change known as malignant deciduoma is evolved.

RESPIRATION, SUFFOCATION AND RESUSCITATION.*

THE MAIN PHYSIOLOGICAL FACTORS WHICH PLAY THE RÔLE IN RESPIRATION, SUFFOCATION AND RESUSCITATION, AND THE AUTHOR'S METHOD OF PNEUMATIC ARTIFICIAL RESPIRATION.

J. MOUNT BLEYER, M.D., F. R. A. M. S. (NAPLES, ITALY),† NEW YORK CITY.

[CONCLUDED.]

If we have gained some idea of respiration, we shall be able to understand what suffocation is, and why carbonic acid in the air is so injurious. Carbonic acid is not a *poison*, as was formerly maintained. Its accumulation in *the blood* is only fatal where there is such an accumulation *in the atmosphere* as prevents its *exhalation;* its mere presence seems to be quite harmless even in large quantities, provided always that it is not retained there. Carbonic acid when absorbed into the blood, which is alkaline, cannot there exert its irritant action as an acid because it will either be transformed into a carbonate or be dissolved. Bernard has injected large quantities into the veins and arteries and under the skin of rabbits, and found no noxious effect ensued. The more carbonic acid there is in the blood, the more will be exhaled, provided always that the air be not already so charged with it as to prevent the exhalation.

Oxide of carbon seems, however, to be truly a poison. The blue flame which rises from the coals or lighted wood is this same oxide, the product of an imperfect combustion; and being notoriously poisonous, it has by some writers been selected as the real agent in those numerous deaths by asphyxia, which have occurred from voluntary and involuntary exposure to the fumes of charcoal in closed chambers, etc. Other methods could have been selected, but one is sufficient for illustration. Carbonic acid was said to be innocent, and oxide of carbon had to bear the whole infamy. There is no doubt, however, that although carbonic acid is not a poison, it will produce asphyxia, and deaths from charcoal fumes may occur either from this asphyxia or from poisoning by oxide of carbon, or from a conjunction of the two. Oxide of carbon is truly called a poison, because its action is deleterious even in slight doses, no matter what may be the state of the atmosphere; but carbonic acid is only deleterious when the quantity in the atmosphere is such that the absorption of oxygen is frustrated. But how does this oxide of carbon act? If venous blood be exposed to it, we see at once the change into scarlet blood takes place. It acts on the blood like oxygen? you will ask. Not precisely; for if venous blood be exposed to oxygen, it becomes scarlet; but when left to itself, it becomes black again (except on the surface), probably because the oxygen has gradually formed carbonic acid. After exposure to oxide of carbon, the blood remains scarlet for days and days —nay, even for weeks, according to Bernard. Prussic acid acts in a similar manner. Poisoning by prussic acid or oxide of carbon may be detected by this scarlet color of the venous blood.

The effect of oxide of carbon is to render the blood disks incapable of that process of exhalation, on which, as we have seen, the activity of the organism depends. The blood, to all appearances, preserves its vitality, for neither the form nor the color of its disks is altered; but the blood is really dead, because its restless changes are arrested. Ever wonderful is the fact, constantly obtruding itself upon us, that life is inseparably linked with change and that every arrest is death. Only through incessant destruction and reconstruction can vital phenomena emerge, an ebb and flow of being. The moment we

preserve organic matter from destruction we have rendered it incapable of the restless strivings of life. A spirit like that of Faust seems ranging through all matter; and if ever it should say to the passing moment, "Stay! thou art fair," its career will be at an end.

The reader has doubtless often heard with surprise that the rusting of iron, the burning of a candle and the breathing of an animal are only three forms of the same process, three names for combustion or oxidation. There is a certain fascination in such generalization, and one always regrets to find them not correct. The rusting of iron and the burning of a candle are indeed two forms of one oxodizing process; but respiration can no longer be considered as in any sense a process of combustion—it is a two-fold process of exhalation and absorption. The interesting experiments of Priestley will enable us to set forth the differences between respiration and combustion. He placed mice into a bell-glass, where in due time they were suffocated by the air which they had vitiated; other mice were introduced, and they expired immediately. In another bell-glass a candle went out, after having in its combustion absorbed a part of the oxygen; another burning candle was introduced, and it was at once extinguished by this vitiated air. In both of these vessels some mint was placed, where it flourished, and so completely revivified the air by absorbing its carbonic acid and giving out oxygen, that mice could again breathe in the one, and a candle burn in the other. In these experiments we seem to have a demonstration of the identity of combustion and respiration—and this, indeed, was the conclusion drawn; but that the conclusion is erroneous, appears from the experiments of Claude Bernard, who takes a bell-glass containing an atmosphere of 15 per cent. of oxygen, and two per cent. of carbonic acid—the rest of the oxygen having disappeared to form water with the hydrogen of the candle which had just gone out. In this atmosphere, in which a candle will not burn, a linnet will breathe at ease for some time. He reverses the experiment and makes an atmosphere in which a candle will burn, but in which an animal instantaneously perishes—an atmosphere composed half of oxygen and half of carbonic acid, in which a candle will burn better than in the air, because, in spite of the amount of oxygen, that oxygen cannot be absorbed. The bird, when about to expire in vitiated air, will be recalled to life if the carbonic acid be removed by the introduction of potash, showing that it is owing to the presence of this carbonic acid that respiration is impeded; but we cannot thus restore the expiring flame of the candle by removing the carbonic acid. Take two bell-glasses, and as soon as the combustion grows feeble, introduce into one glass some potash to remove the carbonic acid; you will, nevertheless, find that the candles in both glasses will go out at the same instant. The experiment is very simple, and its significance is plain. By it we see the difference between combustion, which is only oxidation, and respiration, which is not oxidation but exchange. In the combustion of a candle the oxidation is everything, and no process of exchange takes place. In the breathing of an animal the exchange is everything. The candle expires because there is not enough oxygen in the air; the animal expires because there is too much carbonic acid in the air.

Further, to prove that respiration is an exchange of gases in the lungs and not a process of oxidation, we need only refer to the experiments of Spallanzani and W. Edwards—experiments so celebrated that one is amazed to find one's self citing them in this discussion, which they ought long ago to have closed. These physiologists found that cold-blooded animals will breathe in an atmosphere of pure hydrogen, almost if not quite as easily as in ordinary air; the carbonic acid is exhaled and hydrogen absorbed.* This proves that carbonic acid pre-exists in the blood, and is not formed during respiration by the oxygen as it enters; and proves, likewise, that the respiratory process is one of exhalation and absorption, which can take place as well with hydrogen as with oxygen; and we are thus forced to exclude the idea of oxidation altogether. Although respiration can take place

*The same is true of warm-blooded animals when newly born, but after they have breathed for a few hours, they no longer possess this capability. The reason is unknown.

without oxygen, life will not long continue without it; for, as before stated oxygen is the power which burns organic matter into life.

Why is death inevitable when the access of fresh oxygen is excluded? The fact we know—of the reason we are ignorant. There still remains a large quantity of oxygen in the blood of the expiring animal; nor will death be sensibly retarded if fresh oxygen is injected into the veins and arteries. How is this? The process of respiration brings oxygen to the blood; yet, if the oxygen be brought there through a more direct channel while respiration is impeded, the animal will die as quickly as if left to itself. Bernard tied a dog's head in a bag, which would in a certain time produce suffocation, and he found that period by no means retarded when he injected oxygen into the arteries.

Quitting for a moment this labyrinth of difficulty and doubt, which alternately fascinates and disheartens us when we strive to gain some explanation of the myriad processes of life, let us stand apart and contemplate the marvel of respiratory interchange no longer as an animal function, but rather as a planetary phenomenon; let us endeavor to picture to ourselves the silent creative activity, everywhere dependent on this interchange. The forests, the prairies, the meadows, the corn-fields and gardens—the mighty expanse of plant life covering mountain and valley—subsist on the carbonic acid which is exhaled from the lungs and bodies of animals. Plants take up this carbonic acid from the atmosphere, mould the carbon into their own substance, and set free the oxygen, once more returning it to the atmosphere. Animals reverse the process, taking up the oxygen and giving out carbonic acid for the nourishment of plants. This beautiful rhythmus of organic life has been so often described, that it has almost become commonplace, without, however, losing its charm for the contemplative mind. The dependence of plant on animal and of animal on plant, united in one mystery, and ever acting each for the advantage of the other, is not an idea to lose its charm by becoming familiar; but it sometimes leads to misconception. What, for instance, seems more natural than that the influence of trees planted in our cities should be very beneficial? If trees can thus withdraw the noxious carbonic acid from the vitiated air of cities, would it not be desirable—nay, ought it not peremptorily to be demanded—that as many trees should be planted in our streets as we can find room for? Such conclusions are soon reached by swift logicians. But Nature is apt to elude the grasp of swift logicians, and she repeatedly declines to fall into the symmetrical of their formulas. Not that Nature is capricious or illogical, but logicians are apt to draw inferences before they have collected sufficient data. Nature, in the present case, point-blank declares that the influence of vegetation on the atmosphere is totally inappreciable, unless the atmosphere be in a closed chamber or vessel, and then the influence is striking. Human wit has discovered no test delicate enough to appreciate the influence of plants on the free atmosphere in which we live. The depth and compass of this air-ocean are too vast and the amount of oxygen absorbed by animals too trivial in comparison for any effect to be appreciable; moreover, the mixture of the gases in the air and their mutual diffusion is so rapid that no difference has yet been detected in the proportions of oxygen and carbonic acid in the air of crowded cities, towns or wooded valleys.

The air of cities will hold more noxious exhalations suspended in it, but its gaseous composition will be the same as that of the country. To give an idea of the insignificant part played by animals as vitiators of the great air-ocean, we may mention the calculation made by the distinguished chemist Dumas, that all the oxygen consumed by all the animals on the surface of the globe during 100 years would not amount to more than $\frac{1}{3000}$ of the quantity in our atmosphere; and even supposing all vegetation to be annihilated, consequently no oxygen to be returned to the air by the incessant reduction of the carbonic acid, there would still be needed a period of 10,000 years before the diminution of the oxygen could become appreciable by any instruments we have hitherto invented.

After having thus described the essential characters and conditions of the res-

piratory process, it will be interesting to glance at the results obtained by various investigators respecting the variations among different animals, and in different states of the same animal. We learn, for example, without surprise, that animals of large bulk consume more air than the smaller animal; horses and oxen more than men; men more than dogs and cats. But to use an Eastern figure, it raises the eyebrows of astonishment when we learn that the proportion of carbonic acid exhaled by a man and a horse bears no sort of correspondence to the difference in their relative bulk—the proportion being 187 to 16. We are, in like manner, puzzled to find that a full-grown cat only exhales one and two-thirds of carbonic acid, where a rabbit more than two. How is this to be explained? Is there not a streak of light trembling on this question when we bring forward the fact previously mentioned, that the vegetable feeders uniformly exhale more carbonic acid than the animal feeders, and that carniverous animals exhale more than their usual quantity if they are fed on vegetables? Some light may fall from this source, but it does not suffice to clear up the obscurity. Another interesting problem also arises here. Although the larger the animal the greater is the absolute amount of carbonic acid it produces,* yet the smaller the animal the greater is the relative amount it produces. Thus, supposing the production of carbonic acid be estimated according to each pound weight of the animal, then we shall find that the smaller the animal the greater will be its proportion. But it is not size and weight alone which determine the difference in the amount of air consumed; far greater differences will arise from the varieties of organization. We may accept it as an axiom in physiology that the activity of respiration is inseparably connected with vital activity; not simply muscular activity, as some writers maintain, but all processes whatever involving chemical within the body. The most striking confirmation of this axiom is perhaps to be seen in the phenomena of hibernation or winter sleep. No sooner are the vital functions reduced to this extremely feeble condition, in which we may almost say life is suspended, than these hibernating animals are so incapable of ordinary respiration that they may be placed in an atmosphere of pure carbonic acid and remain there unhurt for four hours; whereas if they were placed in such an atmosphere when their breathing was going on they would instantly perish.

One would imagine, on hearing this, that our ordinary sleep would also bring with it a diminution of the quantity of air consumed. And in as far as sleep may be considered a diminution of the vital activity, such a conclusion must be correct. But in how far is sleep a diminution? That is a question not hitherto asked, consequently without as yet an answer. In sleep there is very obvious diminution of some forms of vital activity, but we are by no means sure that the organic changes are so much less rapid on the whole. We are led to this by the experiments of Molesschott and Böcker, which establish that the chief cause of the difference noticed between the amount of carbonic acid produced during the day and night is the influence of *sunlight;* and that a man lying quietly awake will produce less instead of more than a man asleep, if the conditions of light and temperature are the same. Sleep, *as* sleep, is not, therefore, a diminution of the vital activity; although the sleep which we take at night after the fatigues of the day must, of course, be considered as accompanied by a diminution. It is quite certain that, partly from fatigue and partly from the absence of sunlight, less carbonic acid is formed at night than during the day. Boussingault found that the same turtle-doves during day and night showed a difference of ninety-four and fifty-nine on one occasion, and of seventy-five and fifty-three on another. Lehmann confirmed the observations.

If it be true that all vital activity increases the amount of carbonic acid exhaled, and if every diminution be accompanied by a corresponding diminution of the amount, we may readily believe that intellectual fatigue and the lassitude which succeeds mental or emo-

* This applies, of course, only to animals of the same kind. "Vous serez etonne," says Spallanzani, "quand je vous dirai qu' une larve du poids de quelques grains s'approprl presqu' autant d' oxygene dans le meme tems qu'un amphibie mille fois plus volumineux qu'elle."—Memoires sur la Resp., p. 69. This is because the insect lives so much more rapidly than the reptile.

tional excitement will be accompanied by a corresponding depression of the respiratory function. Nay, even the concentration of the mind on any subject will produce this. Everyone knows the state of "breathless attention." Whenever the mind is preoccupied by a powerful impression of some duration, the breathing becomes so feeble that from time to time we are forced to compensate this diminished activity by a deep inspiration. This is the rationale of *sighing*, an action commonly attributed only to grief, but which is the accompaniment of all mental pre-occupation. The philosopher brooding over his problems will be heard sighing from time to time almost as deeply as the maiden brooding over her forlorn condition. All men sigh over their work, when their work deeply engages them; but they do not remark it, because the work and not their feelings, engages their attention, whereas during grief it is their feelings which occupy them.

It is an interesting fact, and one which throws light on the intimate connection between respiration and vital activity, that a very considerable increase in the production of carbonic acid swiftly follows after eating; consequently an enormous reduction in the amount is found to accompany starvation. The fact was established by Spallanzani, and has been repeatedly confirmed. Boussingault found that pigeons, when fasting, did not produce half the amount which they produced when well fed. Spallanzani suggests that the food during digestion gives off carbonic acid, and this passing into the blood is exhaled in respiration; a suggestion which receives additional force from the fact that vegetable food uniformly produces more carbonic acid in respiration than animal food. But this will scarcely account for the whole of the increase and we are led to seek in the greater activity of the nutritive processes for the other cause thereof; the fasting animal has a depressed vitality.

Temperature has considerable influence on respiration. The fact has been ascertained by experiment, but it might have been deductively established; for the influence of temperature on the vital activities is well known, and whatever influences them must effect respiration. It is only by the aid of such an axiom that we can find our way amid the apparent contradictions of this subject. The remarkable difference noticed between the capabilities of warm and cold-blooded animals in breathing vitiated air is not less than the difference in the effect of temperature on these two classes. We remember our astonishment on learning from Spallanzani that increase in the temperature brings with it a uniform increase in the amount of oxygen absorbed by mollusks and reptiles; it was a statement in direct contradiction to the well-established fact in human physiology, that more oxygen was absorbed in cold than in hot weather. Our difficulty was lightened, however, when we learned that Spallanzani's statement is only true of cold-blooded animals and true of them only within certain limits; too great a heat ceases to increase the amount and gradually diminishes it, as with warm-blooded animals. What are these limits and why this cessation of increase? The limits are these: Take a frog and place it in an atmosphere a little above the freezing point; as the temperature rises from 36 degrees to 45 degrees Fahrenheit, the amount of oxygen absorbed uniformly increases; it remains nearly stationary from 45 degrees to 57 degrees; at 58 degrees it begins to decrease, and this decrease continues until 104 degrees is reached and then the frog perishes. The reason is very simple: A certain amount of heat stimulates all the vital functions of the frog and consequently increases its need for oxygen. When the heat becomes too great it ceases to be a stimulant and depresses the functional activity, till at length a point is reached when the organism can no longer exist.

On warm-blooded animals, the effect of temperature is apparently different, but really the same. Every increase of heat is found to diminish their respiration, every increase of cold to augment it. Thus it is ascertained that the smaller mammals, at a temperature of 86 degrees to 104 degrees, Fahrenheit, consume one-half the quantity they consumed at freezing point. Various experiments on man have elicited the general fact, that under the influence of a moderately cold atmosphere the respira-

tion is increased by one-sixth more than in a moderately warm atmosphere. Precisely as too intense a degree of heat diminishes the respiration of the frog by enfeebling its vital activity, does too intense a degree of cold diminish the respiration of a warm-blooded animal by enfeebling its vital activity. There are certain limits of temperature within which every increase of heat raises the respiration of the frog, because the increase raises its vital activity; but if these limits be overstepped the stimulant is changed into a debilitant.

We see this very curiously illustrated by the hybernating animals, the dormouse, marmot, bat, hedge-hog, etc. They occupy, in this respect, an intermediate position, between the cold-blooded and warm-blooded animals; for although they are really warm-blooded animals, the effect of temperature on them is closely allied to that produced on the cold-blooded. No sooner is there a fall of external temperature than their respiration diminishes. Unlike the rest of warm-blooded animals, their organism seems to have little power of resisting the changes of external temperature; they cannot produce heat with sufficient rapidity to counterbalance the loss they sustain from the surface of their bodies when the air is cold. Instead of acting on them as a stimulus, which would accelerate the respiratory process, cold acts on them with a depressing influence which gradually reduces their respiration almost to zero. But no sooner have they passed into this Winter sleep, and their organic activity has become almost null, than we can at pleasure reawaken it to any degree by raising the surrounding temperature, and as the vital activity once more begins to manifest itself, the respiration (which is only one form thereof) likewise becomes manifest.

Why do we breathe?

The foregoing pages have given some answer to the question, *How* do we breathe? but have not hinted at the why; yet after reading about the respiratory process, a natural curiosity prompts the inquiry as to its cause. Unhappily, nothing but extremely vague answers can be given. We know that the chest expands and contracts with beautiful rhythm, and mostly as an involuntary automatic process. We know that our attention is not required, that no effort is needed, and, indeed, that no effort of ours can prevent the regular alternation of inspiration and expiration. We can by an effort accelerate or retard these motions, but we cannot prevent them. The process, then, clearly depends on a stimulus given to the involuntary part of the nervous system; it is called into action by nervous stimulus, and physiologists have vainly endeavored to discover the nervous apparatus which is involved and the rationale of its action. The pressure of carbonic acid in the air-cells, or of venous blood in the capillaries, may act as a stimulus to the pneumogastric nerve; but what is the rationale of whipping a newly-born child's back and continuation, as a means of making it draw breath? Generally the stimulus of the cold air on the child's face suffices to made it draw breath, which it expires again in a well-known cry, to mother's ears most musical; but this stimulus is often insufficient, and the doctor or nurse initiates the little stranger into that experience of "external local applications," which, in later years, will also be freely used as a stimulus to virtue or learning. The fact we know, but why such "local applications" excite the respiratory activity we do not know, for we do not know the nervous apparatus which regulates the actions of respiration. It is probable that the researches of physiologists will, ere long, clear up this point, as they have cleared up so many others; meanwhile we must content ourselves with vague answers to our question, "Why do we breathe?"

Placental Circulation and Morphinomania.

Bureau (*Report. Universel d'Obtset. et de Gynéc*) attended a patient who had taken morphine for seven years, and who, when he saw her, took as much as 15 grains of that alkaloid daily. She was pregnant for the fourth time. At length she was spontaneously delivered of a child with talipes of one foot. As the cord was divided Bureau collected the blood of the placenta and umbilical vessels. On chemical analysis morphine was detected in the blood.

COMMUNICATIONS.

TWENTY-SIX CASES OF PUERPERAL FEVER OBSERVED IN BELVIDERE HOSPITAL.*

WILLIAM WATSON, M. D., GLASGOW.

These cases I have arranged in groups according to the clinical features present in each, and from the notes I submit, I will be able to make those classes quite clear.

Years of patient observation have not been able to prove the presence of a distinct specific micro-organism in puerperal fever, and now the impression is gaining ground that it is not an essential zymotic disease. Dr. Playfair, speaking of this disease, says in his book:—"If any real advance is to be made, it can only be by adopting a humble attitude, by admitting that we are only on the threshold of inquiry, and by a careful observation of clinical facts without drawing from them too positive conclusions." The small number of cases prevents conclusions being drawn, and it is only a record of the clinical observations I place before you now.

When we read of fearful mortalities in lying-in hospitals amongst puerperal women, and of medical men passing through distracting times when childbed was to them almost synonymous with deathbed, we cannot wonder that this disease was regarded as being quite as specific as the plague, cholera, or smallpox. But, so far, pathologists have not been able to support this view. The only organisms got are the ordinary pyogenic ones, and in most cases a distinct lesion is found on the generative organs accounting for death.

Of the twenty-six cases, eleven were included under the puerperal septicæmia class; one was a case of lacerated perinæum with bronchitis; three were cases of pelvic cellulitis; five of enteric fever; one of scarlet fever; two of pyæmia; one of pneumonia; one of puerperal mania; and one, which died a few hours after admission, had symptoms both of metritis and general peritonitis.

Of the eleven puerperal septicæmias, seven died and four recovered; the three pelvic cellulitis cases, the case of lacerated perinæum, the scarlet fever case, and four of the five enteric fever cases recovered; while the case of mania, the two cases of pyæmia, and the case of pneumonia died—in all, thirteen died and thirteen recovered.

None of the cases admitted were in the early stages of the disease, and no case died without there being a local lesion accountable for death. Hence, I cannot speak of that class of puerperal fever cases where the patient, after a sudden, short, and severe illness, dies without any pathological change being observed.

Infective organisms of all kinds seem to reach their greatest degree of virulence where large numbers of people are gathered together. We are not sufficiently well acquainted with the life histories of the different germs yet to dogmatise, but we have fairly good proof that they seem to pass through different stages to the virulent until they reach a stage when their action produces death with great rapidity. In a maternity hospital, where many women are lying in the puerperal state, should a septic case occur, all round it are suitable culture media for pyogenic organisms, giving these an opportunity for completing, in a very short space of time, their cycle of life, and arriving at their stage of greatest virulence. When we draw examples from the wards of our general hospitals, and see there how much more liable a case is to become septic; when we read of the fearfully septic conditions into which military hospitals got during the war,

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and how even the very slightly wounded died with amazing rapidity from blood-poisoning; when we look into prison statistics and see the relatively high death-rate from typhus fever or small-pox, it makes us lend our support to the view that the more rapidly an organism can pass through the various stages of its development, the greater will be its virulence.

I lately made a *post-mortem* examination on a woman who died two days after child-birth from eclampsia. The uterus was 5 inches long, and its walls about 1½ inches in thickness. The cavity was filled with a large fresh clot, and the broad ligaments were free from any induration. If there is introduced into this clot before its expulsion or absorption any pyogenic organism, and if that organism is highly virulent, it is quite conceivable that death would take place before any definite pathological change occurred. In the same way, accounting for deaths in private practice, an obstetrician having anything septic about his person which he could introduce into this excellent culture medium would readily induce what is known as puerperal fever, and the termination of the disease would depend on the virulence of the organism and the constitutional resisting power of the patient. In connection with this we cannot lose sight of the autogenetic cases.

But leaving these cases, an example of which I cannot give you, and coming to those which, in my notes, I have called puerperal septicæmias, I read what may be taken as a typical example.

M. D., æt. 23, was admitted September 20th, on the sixth day of illness, having given birth to a six months' fœtus five days before. There was evidently no excessive bleeding, and the afterbirth was expelled all right. She had complained of abdominal pain for two days. On admission, she seemed very ill, and was very nervous and excited. The tongue was moist, but slightly coated. The abdomen was full and very tender in the hypogastric region. The uterus extended 2½ inches above the pubis, and its walls were soft and flabby. The os admitted the tips of two fingers, and there was an extremely putrid, half-sanguineous discharge. The spleen was slightly enlarged. On the thenar and hypothenar eminences was a purplish mottling. She was at once put under chloroform by Dr. Nicol, and over a tablespoonful of placenta was scraped from the uterine wall. On the 27th, it was noted that her temperature, which had each night since admission been 102·2° F., was normal, and a marked general improvement had taken place in her condition. All discharges from the uterus had ceased. The uterus was very much smaller in size, the os much contracted, and the abdomen normal in appearance. Her mental condition, which had given rise to great anxiety at first, was quite clear. Pulse was good and her strength was returning rapidly. November 1st she was dismissed well, after being a little over five weeks in the hospital.

There is a considerable similarity between that case and the following, which, unfortunately, had a fatal issue.

Mrs. B., æt. 25, was admitted on August 3d, having been confined on July 29th—*i. e.*, her sixth day of illness. She was not long in labor, and birth seemed to be easy. Her sister, who came with her, said there was considerable, though not excessive, bleeding, and that the whole of the afterbirth did not come away. On the day following she took a shivering, and began to feel feverish. Patient on admission looked very ill. The eye was dull and heavy, and she looked pale and collapsed. Pulse was 140, bounding, soft, and compressible. Respirations were fifty-two per minute, and labored, as if she were in pain. Temperature, 102·8° F. The abdomen was very full and hard, and extremely tender to touch. Movement caused such pain as to make her gnash her teeth and shout in agony. She was at once put under chloroform. The uterus was found to extend to the umbilicus; the walls were dense, and the os uteri admitted the tips of two fingers. From it issued a bloody, very putrid discharge. On curetting, there was brought away a fairly large quantity of placenta from the upper left corner of the uterus. The uterus was douched with carbolic solution, and then she was returned to bed. In this case also there was the purple-looking flush on the eminences of the hands and feet. Tem-

perature in the evening was 102° F.; respirations, 56; and pulse, 136. Before, and also after operation, there were general twitchings of the body like the movements of chorea, and she was slightly delirious. During the night she was wildly delirious, and there was some difficulty in keeping her in bed. Pulse next morning was 170, and very weak; temperature, 103·4° F. The uterus was much smaller in size—two inches below the umbilicus. She was too weak to be douched. The purple color on hands and feet was much more distinct. She gradually sank, and, without further change, died after being about eighteen hours in the hospital. Unfortunately, a *post-mortem* examination was not granted, but there could be no doubt as to the presence of peritonitis following a metritis and parametritis.

The case of R. M. was one of great interest. She was 28 years of age, and was admitted on May 9th, having been confined seventeen days previously. Placenta was expelled three hours after birth of child. Following that, she began to shiver, and complained of pain in the abdomen and back. She had a severe headache, and was sick and vomiting. At the time of birth, and on several occasions since, she lost a great deal of blood. Discharges stopped two days ago. Temperature was 101·8° F.

Patient on admission looked very ill, was markedly anæmic, and had apparently lost a great deal of blood. Her skin was a pale lemon color. Her pulse was soft and compressible, but her tongue was moist and clean. The uterus was very large, fundus being felt 4 inches above pubis. The walls were dense, but the os uteri was not much dilated. No bleeding occurred after admission, but two days later, the uterus getting no smaller, she was curetted, and a considerable quantity of placenta was brought away.

On the 16th, it was noted that her condition was not yet satisfactory, she, on the previous evening, having had a shivering. Temperature was 102° F. She was not further disturbed, as she was sleeping quietly at the time.

On the 17th: "Patient seems to be doing fairly well. Temperature last night, 99·2° F.; this morning it is 97° F. She is still weak, but there are signs of improvement. Bowels are loose, and there is great pain before movement."

On the following day: "Temperature keeps normal. Looks much better. Diarrhœa almost gone, and pain quite away."

On the 20th, her condition was not quite so favorable. On the evening of the 18th, after the above note was made, she had a rigor, and her temperature went up to 106° F. Since that time it is noted that her condition was very hopeless. Mouth was dry, and she had great difficulty in speaking. She was very languid, and could hardly lift her head from the pillow or move her hands.

On the morning of the 21st, there was a marked improvement. She looked brighter and stronger. Speech was freer and better. Tongue was cleaner. Pulse was 92, and very much improved in quality. Temperature on the previous evening was 99.2° F.; on that morning 98.2° F. Abdomen felt quite natural. There was a distinct systolic murmur heard at apex, and very well heard over the sternum. Diarrhœa was again troublesome.

On the 25th: "This woman is now in a much more favorable state. The diarrhœa is well controlled. Temperature keeps normal, and the patient is looking much stronger."

Two days later the improvement was noted as being very pleasing. Color was much better, and strength was quickly returning. Appetite was improving. Progress continued satisfactory, and she was ultimately dismissed well.

Mrs. M., æt. 33, was admitted on January 5th. December 24th she had a flooding, and next day she was confined of a six months' fœtus, after being eight hours in labor. There seemed to be considerable difficulty with the after-birth, the midwife saying that it had grown to her side, but ultimately stating that she had got it all away. There was a great deal of discharge after the birth. She did not feel quite well from that time, but complained of no pain. On the 31st, six days after the birth, the discharges stopped. Before admission she had a rigor. There was no milk in her breasts then, but she stated that milk had been present. Temperature was 101° F.; pulse, 120; respirations,

28. Patient on admission seemed sharply ill. The tongue was moist, and slightly furred. Pulse was weak. The uterus was large, reaching almost to the umbilicus. The os was widely dilated, and there was a faint puerperal septicæmic rash on palms. It was deemed necessary to curette, and patient was put under chloroform. The os then was found to admit the tips of two fingers. The uterus was dense and bulky, but moveable. Curette passed in for 7½ inches. Previous to her getting chloroform there did not seem to be much pain on handling the uterus. There was a great deal of placenta adhering to the left posterior wall of the uterus, more than a tumblerful being removed. Next day the temperature was slightly elevated (103.4° F.), and she had a slight rigor. Pulse was 128, rather weak and compressible. There was very little discharge from the uterus.

On the 7th: "To-day an unfavorable change has come over this patient. She complained of pain in the head during the night, and a slight boggy swelling, with red edges, was noticed. This morning it has spread over the scalp, the lower border being on the brow, and leaving little doubt but that it is an erysipelatous attack. Temperature is 104.4° F.; pulse is 132, and poorer in quality than it was before. The uterus is smaller in size. The tongue is dry, but only slightly furred."

On the 9th, it was noted that the patient was much worse. She lay in a half comatose condition, and her extremities were cold. Pulse was very poor. Suppuration had commenced in the scalp. The abdomen was much improved however, the swelling being to a great extent gone, and the uterus not much more than half the size it was. The discharge had almost ceased, but gradually the patient got worse, and on the same day died.

I would weary you by the details of each case, so I have tabulated the prominent features that the grouping of the symptoms common to all may be simplified.

From the table, it will be seen that, with the exception of two cases, all of them presented some abnormality at birth, that abnormality having to do with the placenta. There was either delay in its expulsion, mechanical interference, or bleeding. Alongside of this statement we may place the fact that in every case there was retained placenta. In rendering the diagnosis of this easy, the contents of the four intervening columns were of great assistance. In every one of the cases there was a mottled, purplish appearance on the eminences of the hands. In some of the cases this was also seen in the corresponding areas of the feet, but the habit of going barefooted in most of the women admitted prevented this being recognizable in most of the cases. This rash bears a strong resemblance to a rash seen in diphtheria in similar situations, where there are evidences of septic intoxication from necrosing material in the throat; but it is deeper in color and more mottled in appearance. In scarlet fever, in the palms and soles also, is seen a condition resembling this. There is, however, no mottling, and the coloration is so superficial in appearance that the parts appear to have been dipped into red ink. I had not been able to find any reference to this appearance in any writings on puerperal fever. Spergelberg mentions that erythemas are not rare. He states that only exceptionally do they start from diseased joints; usually they appear independent of them.

A general erythema is a common thing, due to the absorption of some deleterious material. This is often seen in the early stages of small-pox, enteric fever, and measles, accounting for these diseases often being mistaken for scarlet fever. Where there is a septic wound, a general erythema may be present. But in different diseases this eruption may choose a definite seat and appear in a definite character. I need not mention the common example of erythema nodosum in rheumatism, or the rashes due to different drugs, with which you are all familiar. After the rash of scarlet fever has disappeared, if the throat continues troublesome, especially if there is necrosis, there appears bright red patches over the extensor surfaces of the limbs. It is strange that this should differ from the appearances induced by the absorption of necrosing material from the same situation in diphtheria. This rash was not present in the pelvic cellulitis cases, nor in the mamma case;

and its absence from the enteric fever cases and the case of pneumonia was of great assistance in the diagnosis.

The large flabby-walled uterus—extending in almost every case to the umbilicus, and having a widely-dilated os, with, in the majority of cases, a putrid sanguineous discharge issuing from it—pointed to the presence of a foreign body in the uterus, and that foreign body in a necrosing condition.

In the cases I have read you may have noticed the rapid diminution in the size of the uterus after curetting, which almost proves that it is the presence of this foreign material which prevents the proper contraction of the uterus. In cases where the infection is autogenetic we are almost powerless, because the clot is at once inoculated; and though the uterus is douched out, there is a never-failing supply of pyogenic organisms. No doubt in many cases placenta is left and septicæmia does not follow. All that can be said is that placenta left in the uterus greatly favors the onset of septicæmia, as it acts as a source of irritation inside the uterus, and, by keeping the os dilated, renders the admission of septic material much more easy.

Much has been said about the nature of the puerperal fever poison, but only the streptococcus and the staphylococcus have been discovered. Many have held that, by some peculiar unexplained means, a puerperal woman in contact with a case of infectious disease will take puerperal fever, and not the disease she is exposed to, the poison of the infectious disease being modified by the puerperal state. But surely, if we believe in the "breeding true" of the different infectious diseases, we cannot support this view. Much more likely is it that the septicæmia in the puerperal woman has been set up by the decomposing material in the infectious cases, because, apart from the true specific organism present, we could hardly look upon the atmosphere round them as being other than highly septic, especially in cases of scarlet fever, diphtheria, and erysipelas. The fact of Mrs. M. taking erysipelas while suffering from puerperal septicæmia proves that the poisons are not convertible, as we are sometimes told. In her case the infection was attributed to a nurse who had come to the ward she was in from the erysipelas ward. In a discussion in this Society some years ago, a gentleman stated that he had seen puerperal fever give rise to erysipelas. In both, the streptococcus is found; but if both were due to the same micro-organism, why is erysipelas not much more common in the puerperal state; why do attendants on puerperal fever cases not suffer oftener from erysipelas; why do they not take erysipelas when they are directly inoculated with the discharge, as I have known them to be; and, lastly, how is it possible for the one state to be superimposed on the other?

Three cases I have separated from this list which might have been included in it. These are the two pyæmia cases and a case showing symptoms of metritis and peritonitis, but which died too soon after admission to allow of a sufficient examination. The pyæmia cases ran a course exactly similar to the other cases until, shortly before death, local abscesses occurred in different situations.

Mrs. M'F., æt. 35, was admitted six days after birth of her child. In the doctor's opinion it had been dead for about nine days. There was a great deal of bleeding, and the afterbirth came away almost at once.

The patient looked very ill. The mouth was dry, and there were sordes on the lips and gums. The tongue was coated and dry. The abdomen was full, the uterus being within an inch of the umbilicus. The os was widely dilated, admitting the tips of two fingers, and from it was a hæmorrhagic discharge. Temperature was 103.6° F. On curetting, a large quantity of placenta was brought away. She passed a good night. Next morning pulse was 124, and temperature 103·4° F. That night temperature was 105.6° F., and the pulse 140. On the 24th it was noted that her condition was gradually getting more hopeless. The localized swellings on the fore-arms, which had appeared on the 21st, were deeper in color and painful, but not fluctuant. The eminences of the palms of hands had a deep, livid flush, but this was accompanied by no swelling. Small abscesses appeared in different parts of the body, the breathing got very difficult, and she gradually sank

and died on the 26th. Hence, beyond the appearance in the late stage of localized abscesses, there is nothing, either in the history or symptoms of this case, to dissociate it from the other class.

As regards treatment, many advocate that curetting should be held as a last resort, but considering the difficulty of thorough douching, and the soft, friable, spongy nature of the tissue we are dealing with, curetting would seem to be indicated at the very commencement. In fact, what appear to be good guides in the treatment of such cases are the following:—

If there has been a great deal of bleeding at birth, we may justly suspect the presence of some foreign body in the uterus. This may be a piece of adherent placenta, or some membrane which has become detached and is retained, and which is interfering with the proper post-partum contraction of the uterus. By using at once a douche curette with some hot antiseptic solution, this could be at once removed and proper contractions established. Should there be no more than normal bleeding, but the uterus remain large and walls flabby for some days, we should at once anticipate the onset of septic symptoms, and take suitable precautions.

Whenever there has been much manual interference, or instruments have been used, the uterus should be thoroughly douched out antiseptically.

Three of the cases were regarded as being pelvic cellulitis. We might as well deny that a cellulitis in the neck associated with a bad throat had no connection with that, as that there is no connection between a metritis and a pelvic cellulitis. From the anatomical structure, if there is a metritis associated with decomposing material in the cavity of the uterus, it follows that there must be a certain amount of parametritis; but in the three cases under consideration, the uterus appeared almost normal.

I think there can be no doubt that a wide gap separates such a case as this from the ones I have previously given.

Mrs. M.. æt. 23, was confined twenty-six days ago. It was a cross birth, and instruments were used. The placenta came away immediately afterwards, and was evidently all right. Two days later she complained of abdominal pain, and was feverish. Temperature was 103° F.; pulse, 112, compressible and thready; respiration, 32.

On admission patient seemed very ill. The face was pale and studded with beads of perspiration. The tongue was moist and furred. The eye was clear and the pupils were dilated. The lungs and heart were normal. The abdomen was much distended and tender, and in the right lumbar region there was a large, bulging, painful mass. Between the pubis and the umbilicus the abdomen was tense to the touch, was dull to percussion, and very painful. The measurements were:—

Round abdomen at umbilicus	29½	inches.
Umbilicus to left iliac crest	7	"
Umbilicus to right iliac crest	6½	"
Umbilicus to ensiform cartilage. . . .	7	"
Umbilicus to pubis	6½	"

She could not lie on her back on account of the pain, and was most comfortable when lying on her left side. On per vaginal examination, the os uteri admitted the tip of the fore-finger. The uterus was buried in a dense, immovable mass, and admitted a gum elastic catheter for 5½ inches. There was a slight yellow discharge, but it was not bad smelling. Urine contained a small quantity of albumen. The breasts were not developed. Three days later the pain was very much less. Patient seemed stronger, and the tongue was clean and moist. November 3rd the following note was made: "The improvement in this woman's condition to-day is very marked. Both the pain and fullness are almost entirely gone. She can lie easily in any position, and turns now without pain. Diarrhœa is now giving some trouble. The circular measurement was less by 3¾ inches; from the umbilicus to the left iliac crest, by ¾ inch; to the right, by 1 inch; to the ensiform cartilage, by 1 inch; and to the pubes, by 1 inch." November 7th there was still a slight tenseness in the abdomen. The uterus had contracted in size, and the os was no longer patent. Unfortunately, before going she took enteric fever, but was dismissed well December 31st.

One of the other cases corresponded almost exactly with this one in every particular, but her stay in bed was of great length, as, every time she at-

tempted to rise, the pain and swelling returned to the iliac region. The third case was admitted twelve days after the birth of child, which was easy and natural. Three days following that she sprang suddenly out of a high bed, and two hours later was seized with severe pains in the lower part of the belly. She had a distinct painful mass in left iliac fossa. In none of the cases did suppuration follow, and beyond the presence of diarrhœa—which was also a troublesome feature in first case—this patient made a satisfactory recovery.

In these cases, no rash was present, and from the condition of the uterus one felt sure of the absence of membrane or placenta. Two of them had a distinct history of injury. The third was a primipara, but if it is true, as Lund asserts, the straining at stool can cause pelvic cellulitis, surely the severe straining at parturition is a much more probable cause of injury. From the arrangement of lymphatics, if there was a breach of surface and the absorption of putrid material from the lower part of the generative tract, we would expect a pelvic cellulitis with little or no interference with the uterus, provided that the clot there did not become inoculated, but I think it might be also readily accepted that we have cases of pelvic cellulitis due merely to the mechanical injury of the cellular tissue, and not due either to the direct action of micro-organisms or to the spreading of the inflammation around an enlarged pelvic gland.—*Glasgow Med. Journal*, October, 1895.

Name.	Age.	Complications.	No. of days since birth.	Abnormalities at Birth.	Septicæmic Rash.	Size of Uterus.	Condition of Os Uteri.	Discharges.	Presence of Placenta.	Result.
Mrs. M'K.	32	.....	9	First child; severe hæmorrhage.	Present	Very much enlarged.	Gaping.	None since admission	Considerable quantity removed.	Well
Mrs. M.	28	Persistent diarrhœa.	17	Placenta expelled three hours after birth.	Do.	4½ in. above pubis.	Patent.	Occasional bleeding; none for two days.	Large quantity removed.	Do.
Mrs. S.	32	Mind slightly unhinged.	4	Difficulty with placenta; expelled twenty-five minutes after birth; considerable bleeding.	Do.	Extending to umbilicus.	Widely dilated.	Bloody, putrid.	Considerable quantity removed.	Do.
Mrs. B.	25	Peritonitis.	5	Difficulty with afterbirth; considerable bleeding.	Do.	Do.	Admits tips of two fingers.	Bloody; very putrid.	Fairly large quantity.	Died
Mrs. W.	25	Do.	4	No history of anything abnormal.	Do.	Do.	Admits one finger.	Purulent.	Large quantity in left upper corner.	Do.
M. D.	23	Mind unhinged.	5	Premature.	Do.	2⅓ in. above pubis.	Do.	Extremely putrid; half-sanguineous.	More than a tablespoonful.	Well
Mrs. D.	32	Double pneumonia	10	In labor for 24 hours; no excessive bleeding; placenta small.	Do.	Extending to umbilicus.	Admits tips of two fingers.	Stopped.	A very large quantity, adhering to upper left posterior wall.	Died
Mrs. C.	21	Do.	5	Labor lasted 24 hours; severe flooding.	Do.	Do.	Do.	Putrid.	Considerable quantity of offensive smelling.	Do.
Mrs. H.	27	Mania.	7	Apparently natural.	Do.	Do.	Do.	Do.	Large quantity removed from ant. wall.	Do.
Mrs. M.	33	Erysipelas.	10	Severe flooding day before birth; premature.	Do.	Almost to umbilicus —7½ in.	Do.	Slight discharge.	More than a tumblerful removed from posterior wall.	Do.
Mrs. Y.	No history got. admission.		Died an hour after		Do.	To umbilicus.	Do.	Putrid.	Not curetted, but *post-mortem* revealed large quantity.	Do.

*Uterus at death normal.

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PHILADELPHIA, SATURDAY, OCTOBER 26, 1895.

EDITORIAL.

PLEASE TAKE NOTICE.

The publishers of the MEDICAL AND SURGICAL REPORTER have been informed that one John J. Joyce, of Newark, New Jersey, assignee of Penfield Bros., has issued a circular letter to the subscribers of the REPORTER, directing them to make payment for their subscriptions to him.

Subscribers and all other persons having business with the REPORTER are hereby notified not to make any payments whatever to the said John J. Joyce.

All payments and all communications relative to the REPORTER should be addressed to "MEDICAL AND SURGICAL REPORTER, P. O. BOX 843, PHILADELPHIA."

Those subscribers who so kindly informed us of the receipt of the letter from John J. Joyce, and who have written to us about it, will please consider this notice an answer to their inquiries.

THE MEDICAL STUDY OF CRIMINOLOGY.

In the President's annual address before the New York State Medical Association, Dr. Austin Flint (*New York Medical Journal*) discussed "The Coming Rôle of the Medical Profession in the Scientific Treatment of Crime and Criminals." If the subject in itself is not novel, the presentation of it is peculiarly happy, and is remarkable as a moderate expression of unbiased opinion by a sincere student and keen observer, trained in science and gifted with common-sense.

Dr. Flint does not pretend to exhaust the subject nor to formulate suggestions, his object being that criminology and penology should receive more attention at the hands of the medical profession. Some of the views he advances are well worth pondering:

While it must be admitted that the treatment of crime and criminals, under existing laws and their methods of execution, is a failure, society is hardly prepared to accept the logical consequences of views such as Lombroso, in

"*The Applications of Criminal Anthropology*," quotes Rondeau as saying in an essay on the death penalty:

"Even assassins are patients, as well as all other criminals. They should be punished because they disturb the regular course of social life, because they are obstacles to the development of the species.

"Conceding that every crime is the natural outcome and a logical consequence of some disease, its penalty should be nothing else than a medical treatment."

The idea which underlies the views of Rondeau is that moral liberty has no existence, and that a moral evil is the result of physical fault. "In his system of repression all prisons would be transformed into hospitals; no attempt would be made to improve the organization of convicts. The thief and the vagabond would be treated by making them taste the joys of work, and in secluding for life those inaccessible to all treatment."

Sentimentality in questions of criminology and penology should be put aside. It has no more place in criminal law and penal administration than in medicine and surgery. Crime is a disease of our social organization. It is true that it is ineradicable, but it may be restricted within much narrower limits than at present exist. Crime calls for intelligent and scientific treatment. While crime can not be abolished, all criminals are not hopelessly affected with crime. Individuals may be protected against crime as Jenner has protected individuals against small-pox. Crime may be a constitutional disease, as in the born criminal, or it may be due, in individual cases, to surroundings, teaching, or example—a sort of contagion. It has been abundantly shown that criminals may be divided into two great classes, the curable and the incurable; but the disease which we call crime has nearly as many phases and varieties as are presented by the nosological catalogue. The treatment of criminals will resolve itself into measures to reform the curable and to protect society against the incurable.

A necessary preliminary to the intelligent treatment of any disease is a diagnosis, and this, which is one of the fundamental principles of the science of medicine, is logically applicable to moral as well as to physical or mental disease. It is universally recognized that the insane are not responsible for their acts to the extent of deserving punishment. The organization of society demands that there be protection against the harmful acts of the insane, and the dictates of humanity call for the protection of the insane against himself. It may fairly be assumed that no mental disturbance taking the form of insanity is without a physical cause, however obscure the cause may be. Is it possible that every moral delinquency has a physical cause? It is certain that nearly every confirmed and incurable criminal has a special leaning toward a certain class of crimes. Is there a physical vice or defect which leads to the commission of these crimes, when conditions are favorable to the full development of this vice and to its expression in criminal acts? These are questions that are occupying the minds of criminologists of the present day.

It is often said that the border line between insanity and crime is very narrow and indefinite. The plea of insanity, which is so often presented in extenuation of certain crimes, the irresistible impulse which some insane persons have to commit certain crimes—such as homicide, suicide, stealing, arson, etc.—would seem to show that insanity in some of its phases, readily fades into criminality, or that criminality may be the first manifestation of insanity. Nothing illustrates this idea more strongly than the distinctions that have been drawn between criminality and so-called moral insanity.

To my mind, it should not often be difficult to distinguish between criminality and insanity, provided the data from which to draw a conclusion be full and sufficient. There are the criminal insane and the insane criminal; the one, an insane person who commits crime under an insane impulse; the other, simply a criminal who has become insane. It might be difficult to fix the responsibility of the insane criminal if it were impossible to determine the time when he became insane; but there should be little difficulty in making a

diagnosis of the criminal insane. Other difficulties may also present themselves; An outburst of insanity, made evident by a palpably insane act, under the influence of what seems to be a sudden impulse or a recent delusion, has probably been preceded by a delusion or delusions carefully concealed. A criminal act, without insanity, may be discovered, the criminal having, during a long period of years, sedulously maintained the appearance of scrupulous honesty, often assuming the cloak of religion. In some cases of this kind, it has been maintained that the person is morally insane and is irresponsible. It has always been found very difficult to show that a person who commits a crime against property, with intelligent efforts at concealment, hoping and endeavoring to reap the advantages of his crime or attempting to escape its consequences by flight is irresponsible on any theory. A kleptomaniac steals simply because there is an impulse to steal which he can not resist. He does not profit by the crime and has no logical reason for stealing. The criminal, however, always expects and attempts to enjoy a personal advantage as the result of his crime, or he has a reason which to his criminal mind is logical. The existence of strong temptation, great need, or heavy financial burdens, sudden passion which has a logical cause, revenge or hatred engendered by actual injuries or wrongs, afford satisfactory explanations of many crimes, and enable us to determine the question of responsibility. I can hardly bring myself to a belief in the existence of what is called moral insanity, excepting the moral defects which are so often observed in dementia and senility, when certain passions remain and the normal power of self-control is impaired.

To Garofalo is due the credit of indicating differences between the criminal and the insane, which are clearly appreciable with very few exceptions. In the insane, the accomplishment itself of the criminal act is the end and object, and is, in itself, a source of pleasure and satisfaction. In the criminal, the act is done as a means of obtaining a material advantage, and the act itself may be repugnant. It is the abnormal nature of the pleasure and the fact that no other satisfaction is sought for which characterize the insane and distinguish him from the criminal.

The classification of criminals is not difficult. Dr. D. Hack Tuke adopts the classification of Ferri, with slight modifications.

The criminal by passion, as a rule, has no criminal characteristics. He is simply lacking in self-control and almost invariably experiences remorse. Actually, a criminal from passion is not a criminal and is not a permanent enemy of society. It is necessary, however, to our social system that he should take the consequences of his criminal acts. He does not commit crimes against property.

The occasional criminal, or the criminal by occasion—may properly be regarded as belonging to the criminal class. He may or may not have an opportunity or undergo temptation to commit crime; but under temptation and with opportunity he may commit crime from mere weakness of character. Still, there is no occasional criminal who is without criminal tendencies in a greater or less degree.

The born criminal almost always presents physical signs of degeneration, and his history often reveals heredity or atavism, his moral criminal characteristics usually being intensified by surroundings. It is thought by some alienists and criminologists that there is often little difference between the born criminal and the victim of so-called moral insanity; but it must be admitted that a born criminal is seldom regarded as insane unless he belongs to the higher classes of society.

The professional criminal may be a born criminal, with physical characteristics, or he may present no physical abnormalities. The high-class professional is always a man of considerable intellectual ability, usually free from small vices, and a hard worker. It is pretty generally admitted that a professional criminal past the age of thirty can not be rescued from criminal life. The professional criminal is, of course, an habitual criminal: but other habitual criminals there are of less ability, whose methods of exercising their vocation do not entitle them to rank with professionals.

We have little or nothing to do, in a scientific way, with the criminal by passion. Sad experience and remorse may teach him a lesson and lead him to exercise self-control. He must accept the consequences of his criminal acts; but it is our duty, especially toward the young, to provide that he be contaminated as little as possible by surroundings while under control.

In the scientific study of crime, the physician has to do mainly with the occasional criminal, the habitual criminal, and the born criminal; and in this study, the first thing is to separate these from the offender who is not a criminal and the occasional criminal.

The born criminal is seldom without physical evidences of what is now called degeneration. He presents certain physical abnormalities. In fact, according to the notions of Lombroso and his followers, without such abnormalities he is not a born criminal. All of the purely physical characteristics observed in the born criminal are present to some extent in the normal man. Some of those which have been described by Lombroso and others are: peculiar skull and facial conformations; left-handedness and ambidexterity; absence of exaggeration of tendon reflexes; abundant hair on the head, with scanty beard; muscular abnormalities; anesthesia and analgesia; unusually rapid recovery from wounds, or "disvulnerability"; obtuse tactile sensibility; unusual acuteness of vision; defects in the sense of hearing, taste or smell; with many others less marked and regarded as of less importance. Take, however, individual instances in which even a considerable number of these abnormalities exist. We may have a person with a marked peculiarity in skull formation, a heavy jaw, abundant red hair, scanty beard, diminished knee-jerk, defective sense of contact, acute vision, dull hearing, taste, and smell, some muscular abnormality, and yet this person may pass through life honest and upright, showing no criminal tendency even when exposed to temptation and favored by opportunity; but it would be idle to say that, in a person who had committed a crime, physical abnormalities found to be more frequent in the criminal than in the normal man, and particularly frequent in a certain class of criminals, may not be of great value in classifying the criminal, forming an estimate of his dangerous qualities and of the probability of reformation. A person may have the so-called insane ear or strikingly abnormal palate, great irregularities in the development of the teeth and an insane ancestry, and yet we must wait for positive evidence of insanity by word, deed, or action before he can be pronounced insane. So physical abnormalities, even with criminal ancestry, are never in themselves absolute evidence of criminality.

The weakness in the position that there are any positive physical tests for criminality is twofold. There is no fixed normal standard of comparison; and the exceptions in which physical peculiarities assumed to be characteristic of criminality exist in normal individuals are very frequent.

On the other hand, the mental and moral characteristics of criminality are fairly positive and definite. Given a number of persons who have committed actual crimes; meaning by this certain offenses against the person or against property which are violations of natural laws: These include homicides; all kinds of crime against property, with or without violence; felonous assaults; malicious injuries to person or property; the aiding and abetting of crime for gain, and other forms of crime which readily suggest themselves. There may be excluded: offenses against good order or discipline, not in themselves criminal; purely social offenses; purely political offenses; honest differences from prevalent opinion on political, social, or religious questions; offenses against laws which restrict the natural rights of man; offenses innocently committed through ignorance, etc. The mental and moral peculiarities or abnormalities of these individuals may well be made use of in diagnosis, classification, and treatment. Taken in connection with these, the purely physical abnormalities become of great importance, as they do in the diagnosis, treatment, and prognosis of insanity.

The criminal by passion alone, is a normal man, but deficient in self-control under provocation or strong emotion. He presents no criminal history. The

criminal act is followed by the deepest regret and intense remorse, usually with a desire for all possible reparation.

The criminal by occasion, or the one who commits a crime when occasion presents itself in the form of temptation and opportunity, may lack physical and moral characteristics of criminality and have no criminal heredity, being simply of a weak and pliable organization. This unfortunate should be treated most carefully, and be protected, as far as possible, from influences which may render him an habitual criminal.

The professional and the habitual criminal are the most dangerous enemies to society. Criminals belonging to this class form a criminal organization ruled by the dominating personality of those of superior intelligence. They may possess few, if any, abnormalities called degenerative; but they have no feelings of remorse, even for the gravest crimes, are social in their habits, not solitary, and use the argot, or conventional language of criminals and vagabonds, which is never employed by the criminal by passion or the criminal by occasion. The professional is usually not cowardly like the born criminal. He is temperate, prudent, without real friendships, and his sexual ties are seldom more than transient, and unstable. These aristocrats of the criminal world have talents and industry which, directed in legitimate channels, would command respect. With the professional criminal crime is profitable. Dugdale, the author of that remarkable study of crime called *The Jukes*, says: "We must dispossess ourselves of the idea that crime does not pay." Again, he says: "Those who do minor crimes commit about one hundred to one hundred and fifty offenses to *one commitment*, while those who 'go for big money' get caught once out of five times." A great problem is to make crime unprofitable; but this appears to be excessively difficult. The idea of Garofalo is certainly in the right direction. On conviction of a crime against property, strip the criminal of everything necessary to complete restitution; or if no property can be reached, let the hard labor of the convict contribute as for as possible toward that end. As it is, the innocent sufferer finds it more to his advantage to compound a felony than to aid what is called justice; and often he is deprived of his liberty in a house of detention while the criminal is at large on bail.

It is with the born criminal that the medical profession will have most to do; and the scientific study of this abnormity cannot fail to be of immense benefit to our social system. The born criminal always presents certain distinctive mental and moral abnormalities.

Grouping together the professional, the habitual, and the born criminal, the same differences in intelligence and education are found as in the honest walks of life. Those who are of a low degree of intelligence are forced to limit themselves to crimes that are within the scope of their mental capacity. They replace intelligence with a low duplicity and cunning, and they often act under the direction of others. These most frequently present physical evidences of degeneration. Experience in reformatories shows that many are incapable of education or even of learning a trade which requires a moderate degree of skill. A great proportion of these are incorrigible. While all authorities agree that education in itself is no bar to criminality, it must be admitted that the discipline which is involved in education and the avenues which it opens to honest remunerative labor are favorable elements in reformation when other conditions render this possible.

The chief defect in education observed in criminals is in the line of technical skill. According to the observations of Dugdale, 79.4 per cent. of the criminals examined had never learned a trade. This observation is confirmed by all students of criminology.

What Havelock Ellis calls moral insensibility is always observed in the born criminal. It is very important to distinguish this from so-called moral insanity. General moral insensibility is a want of appreciation of right and wrong from the criminal's point of view —it may be called perversity or depravity—and criminal acts are not followed by repentance or remorse. Those who are regarded as morally insane have no genuine remorse, and the argument in favor of moral insanity without responsibility is based on the notion that the moral insensibility is confined to a

single class of crimes, such as forgery, breach of trust, etc. It is difficult to imagine that a person has a moral defect as regards the crime of forgery, for example, and is entirely honest in other regards. If the idea of monomania is to be discarded by alienists, the idea of moral insanity must also fall. As to the question of monomania, how is it possible that a lunatic shall have a single delusion which his intelligence is incapable of correcting, and yet this intelligence be absolutely normal in all other regards? The mental disease may manifest itself in a single delusion which cannot be concealed; but none the less is it positive proof of mental disease.

The born criminal never has remorse. This is, indeed, pathognomonic of congenital criminality. Bruce Thomson studied this question in four hundred criminals convicted of premeditated homicide, only three of whom expressed remorse. If it is ascertained positively, after a sufficient period of observation and treatment, that a criminal has no real remorse or repentance, it is certain that we have to do with an incurable born criminal.

The general character and mode of life of habitual criminals are interesting and instructive. Such criminals are invariably vain, superstitious, constitutionally lazy and improvident, and are often sentimental and excitable. They are social with their own kind, prone to orgies and to association with a certain class of prostitutes who have the same kind of moral insensibility. They use among themselves the argot, or conventional criminal language, which is quite different from the ordinary vulgar slang. They are fond of tattooing. Lombroso says: "Among male criminals the practice of tattooing is so common as to become a special characteristic." The high-class professional is certainly an habitual criminal, and may be a born criminal; but his habits are usually such as do not interfere with the successful exercise of his profession.

It is impossible to do more than refer to the great questions of atavism, heredity, and environment in their relations to criminality. *The Jukes*, that remarkable study by Dugdale, gives an idea of the terrible influence of heredity. The estimates by Dugdale from the facts which he ascertained are certainly reasonable. He calculated that the descendants of one individual, making a family of twelve hundred strong, entailed upon the community during a period of seventy-five years an amount of loss and expense equal to $1,250,000. If any relief is to be expected from the scourge of the posterity of criminals, it it certainly to the medical profession that society must look.

The treatment of criminals is the great social question of the present day. There is no good reason why we should not take advantage of the studies and experience of criminologists and penologists, treating, without malice or resentment, the criminal as a patient as well as crime as a disease; and there is every reason why we should study crime in our prisons in the same spirit in which we study disease in our hospitals and insanity in our asylums. The objects to be kept in view are the cure of the curable by reformation, protection against the incurable, prevention in the way of limiting the development of criminal tendencies in the young, and deterring those in whom these tendencies have become developed. Punishment, as retribution for crime, has no place in this system. Punishment, except as it deters, is of no advantage to society. The spirit of revenge which leads an individual to kill or injure one who has wronged him has no place in the legal protection of members of our social system. What leads so many good citizens to condone crimes against property, if they can secure any degree of restitution, is the fact that it is of no advantage to the injured that the criminal be punished, to a certain extent at his expense and inconvenience. Punishment, however, is a necessary element of discipline, and nowhere is discipline more important than in reformatories and prisons.

The reformatory treatment of criminals is that which appeals most strongly to us as members of a profession whose mission is to alleviate suffering and preserve health and life. We do not ask, Is it worth while to attempt to reform criminals? but simply, Can they be reformed? On this question I can speak with the advantage of some experience.

In 1894 I had the honor to be a me-

ber of a commission of investigation of the New York State Reformatory at Elmira. This investigation continued for about six months, and during that time I made a careful study of the methods of the institution and the results obtained. These results are most striking and encouraging to those interested in prison reform. The system—which time does not permit me to fully describe—involves discharge on parole after a certain period of treatment. It is estimated—and the estimate seems fair—that out of 3,725 paroled from 1876 to September 30, 1893, 3,051 were reformed, or 81.9 per cent. Out of 4,797 indefinites discharged, "whether by parole, expiration of maximum term, or any other way, the percentage of reformations was 63·6." These calculations are based to some extent on estimates. In 1887 and 1888 an effort was made "to verify the estimates of probable reformation as to 1,722 prisoners who had been paroled prior to September 30, 1887." Inquiries to prisons, relatives, employers, and acquaintances of the men were made. Definite information was received as to 1,125 of those paroled. Of that number reliable information was received that 78·5 per cent. had not fallen into crime. This would give a percentage of 51·28 known to have been reformed out of a total of 1,722 paroled. After six months of satisfactory conduct on parole a prisoner receives an unconditional release.

The agencies which operate in bringing about these remarkable results are the following:

1. The indeterminate sentence, which gives hope of release and incites to efforts at reformation on the part of the inmate.

2. The strict and inflexible discipline, including military training. Most inmates have never been taught self-control and have never been subjected to discipline.

3. Physical training, with no opportunity for committing excesses of any kind.

4. Removal from surroundings and associations of a demoralizing character.

5. Education and techninal training. Pike, the distinguished author of *History of Crime in England*, says: "There is one great preventive for crime, one great antidote to instincts inherited from the past, and that is education."

To summarize, a criminal by instinct, his criminality fostered and developed by surroundings, absolutely illiterate, without a trade or means of earning an honest living, with a feeble and vicious physique, may be discharged from the reformatory on parole, physically well and strong, with an education not beyond his station, a skilled mechanic with good employment under honest surroundings. He has six months in which to learn self-reliance, and is then a free man. The Elmira Reformatory well deserves its position as the model institution of its kind.

It is so rare that a criminal more than thirty years of age—except the criminal by passion and the criminal by occasion—is reformed, that such are excluded from the benefits of purely reformatory institutions. The objects in the treatment of these and of the incorrigible younger criminal are the protection of society and deterrence by example and fear of consequences of crime. Imprisonment and protracted surveillance of habitual criminals is an essential element in the protection of society against the habitual criminal; and an imprisonment which has no attraction of any kind. An imprisonment at hard labor, the prisoner supported by the barest necessaries of life, with the most rigid discipline and persistent surveillance after release, is what is required, not as retribution, but for protection alone. A dangerous man, like any dangerous animal, should be prevented from doing harm. We confine a dangerous lunatic, largely for our own protection; but not under conditions intended to deter men from becoming insane or to deter other lunatics from committing violent acts, as is evident. Although an habitual criminal may be one by heredity and instinct, he is still capable of a certain self-control and can appreciate the consequences of criminal acts. When these consequences show little chance for profit and involve seclusion from society, at hard labor—which is always repugnant to the born criminal—and with no comforts or distractions, they can not fail to exert a deterrent influence; but humanity demands that criminal jurisprudence and administration should

carefully separate from the class of incorrigible and habitual criminals the criminals by passion and by occasion.

The idea of restitution and reparation enters very little into the existing methods of treatment of criminals. Crime should be rendered as little profitable as is possible; and in simple justice the State should force the criminal to make restitution and reparation to the injured to the fullest possible extent. Nothing will more efficiently deter from crime than taking away or largely diminishing the profits of criminal acts. This idea of restitution and reparation pervades the Italian school of criminology and is well represented by Garofalo. Speaking of a certain class of crimes against property, Garofalo, quoted by McDonald, says:

"For this there is nothing better than the forced payment of the fine and damage to the injured party. This would produce other advantages to society. An unfaithful cashier or fraudulent bankrupt would know that if once discovered he could not enjoy the smallest part of the money stolen, but would have to return all, every penny, or otherwise he would have to work for an indefinite time for him whom he had robbed. This is a forcible way of causing the sudden reappearance of the sum that might be thought to be in the hands of consorts. This is much more useful than imprisonment for a fixed time, which is no profit to any one, and only adds to the damage from the crime the expense of supporting the prisoner. If the money has really been spent the offender must work without respite for the repayment of the injured party. If he will not do it voluntarily, he will be obliged to do it by working for the State, where there is no bread without labor. If, in spite of his efforts, he is unable to gain a sufficient sum, after a certain number of years, according to his age or his good-will, this constraint can be fixed to ten or fifteen years; but this term should be lengthened as soon as a want of assiduity is noticed. If the delinquent fulfills all his obligations, he is to be released, and deprived only of his political rights, with interdiction of any public function, or of exercising commerce, if it is a case of a bankrupt."

The history of criminality is full of solemn warnings of dangers incident to existing systems in the treatment of crime, and the greatest of these is heredity. The history of *The Jukes* conveys this warning in the strongest possible manner. We are justified by public opinion in protecting ourselves from the dangerous insane by perpetual confinement. The dangers we have to provide against from the habitual criminal are much greater, as he is an enemy with more or less intelligence, acting with method and in concert with others. All criminologists agree that such criminals, when irreclaimable, should be put under perpetual confinement or surveillance. Dugdale says: "In dealing with the habitual typical criminals who are contrivers of crime, criminal capitalists and panders, where we can not accomplish individual cure we must organize extinction of their race. They must sternly be cut off from perpetuating a noisome progeny either by the propagation or perversion of a coming generation. The old laws attempted this extinction by hanging; but for us it must be perpetual imprisonment, with certain mitigations to guard against barbarity. For this class, congregate imprisonment is perhaps the most suitable."

Dugdale evidently did not care to suggest a method of organizing "extinction of their race"; but one less severe than hanging readily suggests itself. It would be not difficult to devise a method of sterilization of irreclaimable born criminals which would not offend sentimental public opinion; this to be applied, not as a punishment for any particular class or classes of crime, but merely for the protection of society, and after a full scientific investigation of every case.

Casein in Woman's Milk.

Wroplewski (*Centralbl. f. Gynak.*) has made researches into the comparative properties of casein in woman's and casein in cow's milk. The casein is different in the two kinds of milk. In woman it contains less carbon, nitrogen, and phosphorus, but more hydrogen and sulphur. The solubility of the casein differs, and different chemical changes go on when cow's or woman's casein is submitted to gastric digestion.

ABSTRACTS.

EPIDEMIC INFLUENZA, 1889 TO 1895.*

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So thorough has been the study of influenza during the past century and a half, and so many have been the monographs and volumes written, that it seems presumptuous to add to the list.

To this generation of practitioners the disease was only a matter of history until 1889. Since that winter we have seen the spread of the scourge five times, and may now draw lessons from personal experience.

Etiology and History—The early epidemics were wide-spread, usually following the passage of armies or pilgrims. The cause was looked for in sudden changes of temperature or of the winds, occurrence of earthquakes and comets. A little before the middle of this century, it was believed that a specific material cause existed, and "influences" were therefore discredited. Volcanic dust and vegetable spores gave place to the theory of a germ. Pfeiffer and Canon (1892) independently demonstrated such a germ; the one in bronchial secretions, the other in the blood of influenza subjects. The bacillus is the smallest yet discovered, but develops characteristic drop-like colonies on glycerin-agar. It was not found in those not suffering with influenza. Inoculations gave positive results in apes and rabbits, so that we may safely say the case is proven. Many observers have found streptococci, staphylococci, and the diplococci of pneumonia, showing that the circumstances adapted to one are congenial to the other.

The telluric and atmospheric influences which absorbed attention one hundred years ago, should not be dismissed with derision, for we may now study them in reference to the development and spread of the germ. For this purpose I have arranged a table showing a number of cases observed during each month of each epidemic, with the temperature, humidity, and barometric pressure for the time, and also for the months preceding and following:

TABLE SHOWING RELATION OF ATMOSPHERIC CONDITIONS TO PREVALENCE OF INFLUENZA.

MONTH AND YEAR.	Number of Cases.	Average Temperature.	Humidity—per cent.	Barometer.
1889—				
November	.....	46	75	30.08
December	65	41	78	30.17
1890—				
January*	103	40	70	30.22
February	.....	40	76	30.12
1891—				
February	.....	38	77	30.00
March	51	38	73	30.10
April†	133	52	69	30.00
May	42	60	67	30.03
June	.....	70	72	29.96
December	29	42	74	30.17
1892‡—				
January	10	30	76	30.05
February	.....	33	74	30.14
1893—				
November	.....	44	74	30.12
December	36	35	74	30.14
1894—				
January	15	34	78	30.17
February	18	29	75	30.16
March	2	44	72	30.11
April	.....	49	73	30.04
May	3	60	74	29.97
June	.....	70	70	30.00
December	1	36	73	30.14
1895—				
January	159	30	77	30.07
February	21	25	68	29.96
March	16	36	67	30.01
April	8	.....	.....	.....

*During January, 1890, there were 264 deaths from influenza in New York City. Total deaths, January, 1890, 2,299, against 1,014 in previous years.

†507 deaths from influenza in April, 1891.

‡A few cases were reported during the spring and summer of 1892.

*Archives of Pediatrics, October, 1895.

From this table it will be seen that in 1890 the greatest number of cases occurred in a temperature of 40° and humidity of 70 per cent. In April, 1891, the temperature was higher, viz., 52°, but the humidity lower, *i. e.*, 69 per cent. In January, 1895, the extremes were still more marked, temperature only 30°, while the humidity reached 77 per cent. It appears, therefore, that the bacillus flourishes under many conditions; history, too, tells us that the disease has prevailed in all climes, seasons and altitudes.

The relation of humidity to death-rate is, however, to be viewed from a different standpoint. In all epidemics, as at other times, it is difficult for the normal body heat and the pulse to be maintained when radiation is so interfered with. Influenza is extremely enervating and debilitating, and many persons succumb from no apparent complication other than increasing humidity of the atmosphere.

My notes include 732 cases, of which 258 were children. As about one-third of the cases are in the young, it seems that tender age does not afford immunity, nor is the disease one peculiar to childhood.

Age, Sex, and Condition—Influenza is no respecter of persons, and attacks the foundlings on Randall's Island to-day as it did the great George Washington a hundred years ago.

My youngest case was two months old, but other observers report earlier, a congenital case being recorded by Dr. Townsend. Thirteen of the cases were under one year of age. Since 1889 we have witnessed the spread of five epidemics, although the cases of 1892 and 1893 were very few.

Contagion and Incubation—The contagion is virile, and spreads so rapidly that entire families, households and institutions are overwhelmed almost at once. I am informed that in 1889–90 the influenza attacked seventy-five per cent. of the 300 inmates of Randall's Island Infant Hospital. In one ward of thirty-two patients none escaped. Two of these died of broncho-pneumonia. During the same epidemic no cases occurred in the Home for Aged Women, but in the following year half of the inmates were affected.

The disease was brought in by a woman who returned sick after a visit outside. In this house epidemic the incubation period was only twenty-four hours.

Among the cases are noted thirty-four family groups of three or more members. In some instances the development could be watched, one case following twelve or twenty-four hours after another, but, as a rule, extension was so rapid as to thwart tracing communication.

There are numerous records of the first case in different localities. In 1889 our first case occurred on December 18th. On January 6th, two weeks later, it appeared in California. Not until February 11th did it appear at the Soldiers' Home, in Grand Island, Neb. This is the geographical centre of the United States, yet the disease did not take hold here until after the large cities having free communication were infected. If spread by winds alone, all towns would be infected alike, without regard to size or activity.

This illustrates well the spread of the disease by contact or contagion from one city to another, and how the germs are carried by persons to places before free from disease. The influenza had a grip on the entire breadth of the Union in fourteen days. One hundred years ago the territory could not have been covered in as many weeks.

Facilities for travel regulate the spread of influenza. The epidemic of 1803 covered Great Britain in four months, and remained six weeks in a place. The 1889–90 epidemic lasted six weeks here, but that of 1891 continued eight weeks. In 1894 the unwelcome guest tarried three or four months before it was entirely lost.

The siege of 1895 began sharply in January and dwindled away in April. The late cases in each of these epidemics, the aftermath we may say, were mild, and shorter in duration than those that occurred early. This may be due to the fact that susceptible persons succumb early, or that the contagion is attenuated and less virulent toward the end of the epidemic. All epidemics have this characteristic.

Symptoms—The poison of influenza interferes with the functions of many

organs of the body, and so gives rise to a great variety of symptoms. In the majority of cases the leading symptoms are referable to the *respiratory*, the *nervous*, or the *digestive* system. We may, therefore, consider the cases in three classes, or as of three types. The disease is primarily a catarrh, and hence sneezing, coryza, and irritation of the throat are early symptoms. The trouble may be more severe in some parts than others, so as to result in exudative tonsillitis in one case, while the next may have marked laryngitis. Suppurative tonsillitis occurs sometimes. There is a universal congestion of mucous membranes, and consequent cough. Soon secretion is active, and general bronchitis results. In weak persons, at the extremes of life, the abundant secretion caused pulmonary collapse after coughing, and thus starts capillary bronchitis, which is properly lobular pneumonia.

Acute croupous pneumonia occurred but a very few times, so that I look upon it as a coincidence. Many had small areas of consolidation, mild pneumonias, and usually recovered. In a few instances general pneumonia seemed to have begun, but subsided after the congestive stage. Many children in my dispensary district are flat-chested, and have more or less fibroid induration of the lungs. In most instances these children overcame the disease. A few, with bad heredity and hygiene combined, seemed to become subjects of chronic bronchitis. One or two tuberculosis adults dated their illness from an attack of influenza. We know that many germs are always about, and it would be strange if the tubercle bacilli did not locate in some of these weakened lungs. Dyspnœa is partly due to nerve prostration, and may be severe when there is little obstruction in the lungs.

Pleurisy was of rare occurrence, as shown by physical signs. Many persons gave symptoms pointing to the pleura; but absence of friction sounds, or dullness would show that the pains arose from the nerves—a neuritis.

Laryngitis of adults leads to aphonia and harsh voice sounds; that of children is usually catarrhal, and causes croupy breathing.

The parotid glands enlarged in some instances, particularly in infants. A few such also had otitis, with suppuration and enlargement of the upper cervical lymphatic glands. An infant eighteen months old had scarlet fever, from which she was fairly convalescent when influenza appeared in the family. Then bronchitis became severe, digestive disturbances marked, and suppurative inflammation caused perforation of both membrana tympani. This was proved by peroxide of hydrogen appearing in the nostrils when syringed in the ears. Desquamation was never very clear, and I question if all these conditions were not of grippe origin.

Digestive Disturbances—The sudden onset of this strange malady gave little time for malaise and premonitory symptoms, so common during the incubation of other fevers.

Loss of appetite and nausea are common. Vomiting is commonly present in those who have feeble or over-sensitive stomachs. Children's stomachs readily unload from local or reflex causes, and we find many of them with the digestive type of disease, but it is not of long continuance. The bowels are rarely in a normal state, constipation being present early and diarrhœa coming later, and seeming to mark a crisis and return to health.

Nervous System—Blakiston says "that influenza is an affection of the nervous system, with its concomitant derangements of the organs of digestion, circulation, etc."

This is true, and many are the nerve symptoms produced. The poison seemed to overwhelm adults in the epidemic of 1889. Stupor was common; delirium also. Many seemed to lose reason, and thought of suicide. Some persons did take their own lives from this cause. Many were first warned of illness by intense headache, while others first noticed faintness or vertigo.

Many children had convulsions as an initial symptom. The mental development of a child is different from that of the adult, so they had no suicidal tendencies nor prolonged fits of melancholia. However, the langour, depression of spirits, lack of interest in surroundings, and general mental numbness was common.

The pains are intense in this malady, and vary only in seat and degree. Thus,

many persons had trifacial neuralgia who were not subject to it before. Some had such intense pain in the neck as to be unable to move the head. Older children were affected the same way. Nearly all suffered in some degree from articular pains of all joints, and a feeling of severe and deep soreness everywhere. Many of the poor expressed themselves as feeling as if they had been beaten. It is interesting to note that rheumatic subjects are positive that the pains surpass what they are accustomed to.

A form of lumbago and pain in the chest like intercostal neuralgia is of frequent occurrence. Many have pains in the stomach and bowels unlike that due to simple indigestion. Cramps in the legs I noted in some instances.

Convulsions, delirium, and stupor seem most common in the young. Melancholia, less pain, but more pulmonary trouble seem to fall upon the aged. Two pneumonia patients, adults, had active delirium, and one of them attempted suicide.

Chills may usher in the disease, but they are not prolonged or severe. Often slight chills recur. Some observers speak of a quotidian ague forming part of the history. I have not observed cases in confirmation of this. The temperature is three or four degrees above normal, and may rise to 104° or 105°. High temperature indicates a complication, for example, pneumonia. A weak pulse is common, as in most cases of poison acting on the nerves. The kidneys are inactive for a few days, while congestion is everywhere present and normal secretions lessened. The urine is high-colored, of high specific gravity, and may contain albumen.

Complications—Among the complications occurred the following: Otitis, parotiditis, urticaria, jaundice, erysipelas, pertussis, and a baby with hereditary syphilis. The last was an infant five months old, living with foster parents, who were very ill from influenza. The child had snuffles before the influenza, but this was aggravated, and bronchitis added. The boy now (1895) is free from active symptoms of syphilis, but has the usual flat face so characteristic of the disease.

A boy of two years had pertussis in the autumn of 1889. For two weeks before the grippe arrived he had been free from cough and had taken no medicine. With the attack of influenza, the spasmodic cough returned, and continued for another six weeks. A girl of eight years had a parallel experience.

A case of peculiar interest was that of a nurse who was prostrated by influenza of the neurotic form, with severe headache and stupor. Her temperature was 103° with the grippe. It dropped to nearly normal, and she considered herself convalescent for about two days, when I again found her with a rising temperature. She began to cough and sneeze, and in two days was covered by the eruption of measles. This was just fourteen days from the time she had been attending a family with measles. Her convalescence was slow.

There seems to be a relation between different infectious and zymotic diseases which is in some instances very close. During the winter and spring of 1891 measles prevailed with influenza. In the year 1894 the circumstances were the same, both diseases occurring in winter and spring. During the spring and summer of 1893 measles prevailed without any cases of la grippe. In 1895 a mild epidemic of measles followed influenza.

During the seventeenth and eighteenth centuries there were recorded twenty-six epidemics of measles and twenty-six of influenza. In four instances, *i. e.*, sixteen per cent., they occurred at or near the same time. This is more than a coincidence, and it is reasonable to suppose that the conditions favorable to one contagion may be the same to another. It will be noted that both are primarily catarrhal affections.

One case presented nearly every symptom and complication ascribed to the disease. A healthy Irishman (McEvoy), age twenty-six, began with severe "break-bone" pains and intense headache. In two days he had active delirium, and was with great difficulty kept in bed. He made several attempts to jump from the third-story window. Pain increased in his side, and pleuritic frictions could be heard. The lung steadily solidified, and he seemed a perfect case of pleuro-pneumonia. The temperature reached 105.2°. He had

numerous bloody stools early in the course of his illness. He died at the end of a week.

Croupous pneumonia did occur, though the lobular type was more common. One pertussis case had pneumonia as well as grippe. A genuine pleurisy is not recorded in the list of children, but several appeared among adults. A girl, aged seventeen, in the third stage of phthisis, died two weeks after taking influenza, though death seemed imminent anyhow. A boy of four years had jaundice, complicated by influenza, and then followed by scarlet fever. A cervical abscess then formed, and not very long afterward he had whooping cough and diphtheria. With the latter he had acute nephritis, with scanty urine, containing albumen, blood and casts.

Complete suppression of urine is noted once. This appeared a more frequent symptom in adults.

As to type, the pulmonary prevailed in 1889–90; also in 1893–4. The neurotic type was very manifest in 1891–2. The other epidemics seemed to embrace the three forms alike.

Treatment.—There is no antidote to the influenza toxine. As in other infectious diseases, when the poison is in the system, we must try to sustain the parts liable to suffer from its presence. Elimination must be promoted—from the lungs by expectorants, from the digestive tract by cathartics which increase secretion, from the skin and kidneys by drugs acting on the circulation.

In some cases cardiac depressants will act best, in others stimulants. If general treatment still leaves the patient suffering in some one part, give a symptom remedy for its relief. Phenacetin, antipyrine, or acetanilid proved good for the headaches. Doses must be small for small children. Old-fashioned diuretics and diaphoretics relieved fever and joint-aches. Salicylate of soda came to be my routine for cases with pains and fever, two or three grains being given every three hours to older children. Stimulating expectorants with carbonate of ammonia or champor were helpful after the first few days. To many patients I gave nothing but maltine and carbonate of ammonia. The latter must be dissolved in water before mixing with the maltine. In this way the irritating effect of the ammonia is obscured, and both food and stimulant are taken every few hours. The older children and adults did well on maltine with cocoa wine, which seemed to be especially adapted for enfeebled nerves.

For slow convalescence, give all the food possible, with remedies that aid nutrition, *e. g.*, beef juice, eggs and milk, wine-whey, malt and iron, or cod-liver oil. Embrocations are helpful; alcohol may be used one night and olive oil the next night. The ancients held embrocations in high esteem, but now we are prone to leave them for the athlete and prize-fighter. The sick and feeble are more in need of them. Alcohol was rarely given, as I do not often administer it to children with any disease. In this I agree with the quaint Dr. Harris, who wrote, in 1690, "All Sorts of Spirituous Liquors destroy the natural Ferment of all Stomachs, especially of those of Children; they weaken all the Nerves of the Body and most certainly drive the animal Spirits into all Sorts of Confusion."

Epidemic influenza is a self-limited disease, which we cannot cure if we would. Like enteric, or other fevers, we can only treat symptomatically, and guide through the storm from which we cannot escape. A little prophylaxis may be exercised by closing schools on the appearance of an epidemic and by discouraging attendance of assemblies, as lectures, theatres, etc.

In review, it appears that influenza is a very old disease, of which scarcely any new thing can be said. The forms of its occurrence are the same as centuries ago. The leopard has not changed his spots. It travels as of old, except faster, as people travel. The mortality is the same, even under nineteenth century treatment, relatively few dying directly of the disease, but many of secondary complications. The aged suffer most and the children least. The latter escape because they rarely have organic diseases. The one thing we have discovered is the cause. But how to meet and annihilate it remains to be demonstrated.

CURRENT LITERATURE REVIEWED.

IN CHARGE OF SAMUEL M. WILSON, M. D.

A Successful Operation for Intussusception in a Baby Four Months Old.[1]

The patient was a perfectly healthy child when born, five months ago, and has always nursed well, but has, since birth, suffered more or less from diarrhœa, with green and sour-smelling stools. In November he began to be restless and fretful, and continued so for two days, when the stools began to be bloody, slimy, and more frequent, and he began to vomit after nursing. Dr. F. M. Sharpe made the diagnosis of intussusception, and insisted upon immediate removal to the hospital, where I first saw him in consultation.

Abdominal palpation revealed a sausage-shaped tumor occupying the left lumbar and iliac regions and dipping down into the pelvis, while the right side of the abdomen seemed, by comparison, empty. With the finger in the rectum, the descending bowel could be distinctly felt about two inches above the anal ring.

Under chloroform, an attempt at reduction by inflating the bowel with air through a large catheter from a small hand-bellows resulted in the dislodgement of all but about eight inches, which now occupied the right hypochondrium. No time was lost in opening the abdomen by a median incision from the umbilicus to the pubes under antiseptic precautions. Still impossible to bring the intussusception into view, the incision was enlarged upward to a point about one and one-half inches above the umbilicus. Reduction was now completed fairly easily. The appendix vermiformis, cæcum, and the beginning of the ascending colon were highly edematous and covered with lymph, but no signs of strangulation were visible. The abdominal incision was closed by figure-of-eight silkworm-gut sutures, a protective dressing applied, and the patient put to bed in good condition.

The entire procedure did not occupy more than half an hour. The temperature and pulse, respectively 99° F. and 128 on admission, were 98° F. and 160 after the operation. Twenty minims of paregoric was immediately given, and this dose was repeated three or four times in as many days when the bowel movements became too frequent or the baby seemed in pain. The first defecation occurred about twelve hours after reduction, and, like those which followed it for the first few days, contained some blood, the amount diminishing daily.

Immediately after the operation, feeding an ounce of peptonized milk with a dram of liquid peptonoids, every two hours, was begun. After the first forty hours the mother nursed the baby regularly. The highest temperature—102° F.—was recorded sixty-four hours after operation. The incision healed *per primam*, and the stitches were removed and the patient discharged on the fourteenth day.

The symptoms and physical signs were pathognomonic, and the history of the case shows the importance of prompt recognition and early operation in this alarmingly fatal accident of early childhood.

[1] J. Bion Bogart, M. D., *Brooklyn Medical Journal*, September, 1895.

A Study of Race Egotism.[2]

After reviewing a number of incidents in the life of Carlyle, the writer concludes that he was not insane, but simply acted as a Scotchman in his peculiar position and age might be expected to act. He summarizes his article by quoting Jeffreys: "The great source of your extravagance and of all that makes your writings intolerable to many and ridiculous to not a few, is not so much any real peculiarity of opinion as an unlucky ambition to appear more original than you are."

Two Cases of Railway Spine With Autopsy.[3]

These cases are interesting because opportunity for autopsy in such instances is rare, and because the element of litigation did not enter into the first case.

An upholsterer, 47 years old, fell from a bridge, striking his head and back on a mound of earth thirty feet below. While unconscious he was taken to a hospital and on awakening felt confused, suffered from pains in the back, and his body trembled. The next two and one-half years were spent, partly at home and partly in hospitals, sometimes improving greatly and then after exertion relapsing. The symptoms were excessive sprain, with marked spasms of the muscles of the back and trunk and tremor, with increased reflex excitability, disturbed sleep, sudden awakening with fright, excessive sweating, frequent micturition, occipital headache, tinnitus aurium, and marked general weakness. At the autopsy no gross changes in the nerves or nerve centres were found. There was slight fatty infiltration of the liver, a slightly granular condition in the kidneys, and a few patches of commencing atheroma in the larger vessels. Staining, by Weigent's method, and microscopic examination showed nothing further.

Case 2. A contractor, aged 46 years, while attempting to drive across a railroad track in January, 1893, was thrown into the air by an express train, and engine and tender passed beneath him before he fell on the roof of a car and thence to the ground. He was removed to a hospital while unconscious and found to have lacerations of the forehead, scalp, and nose, and contusions of the trunk, and particularly of the left shoulder. In a few hours he regained consciousness and was found to have little if any power in his left leg and arm. About a month later the writer saw him in consultation. There was marked flattening of the left supra and infra spinatus muscles, and atrophy of the left deltoid; the left arm hung almost uselessly, and motion at the shoulder and elbow was restricted and painful. The left

[2] James E. Kiernan, M. D., *Alienist and Neurologist.*

[3] F. X. Dercum, M.D., *Journal of Nervous and Mental Diseases.*

hand and fingers were smooth and glistening. Pressure over the brachial plexus and the mid-dorsal and mid-lumbar spine was painful. Flexion forward or to the right caused pain referred to the mid-dorsal region. Slight paresis and recurring spasm of the muscles of the right half of the face also were noted. Tactile sense remained, but in the right leg and right half of the trunk sensation for pain was lost. The analgesia extended to the level of the right nipple and was fairly defined by the median line anteriorly and posteriorly.

The sense of temperature was abolished in the right leg and abdomen to the false ribs; above these it was present, though diminished, and like the analgesia it was limited by the median line. The cutaneous reflexes seemed diminished, and the knee jerks unchanged. The man was very weak, but mentally clear and without much depression of spirits.

When seen again in consultation in May, all the previous symptoms were noted. In addition the man looked badly, and the left brachial monoplegia and muscular atrophy were more pronounced. In November there was found an almost complete loss of voice and a difficulty in swallowing solids. The muscular twitchings were more marked and present on both sides of the face. No reaction of degeneration, but merely slight quantitative diminution was found. The tongue was deflected to the left when protruded and the left side was smaller than the right. Taste was lost on the anterior two-thirds and diminished on the posterior third. The sphincters were unaffected throughout. The pupils are small and react feebly to light, but readily to accommodation. Dr. J. Solis Cohen made a laryngoscopic examination and reported the left vocal band as completely paralyzed in a position just within that usually seen in a cadaver, its border so depressed that it looked broader than when in the normal position, and partially applied towards the external portion or wall of the laryngeal canal. Its aryepiglottic fold was tenser than that of the right side. The right vocal band reached the middle line, but being on a higher plane than the left one was unable to reach it, and hence there was complete aphonia. As the paresis twitching of the facial muscles and slight wasting of one side of the tongue suggested unclear disease, it was thought probable that the hemipalsy of the larynx had an nuclear origin. Thoracic aneurism was considered possible, but physical examination failed to reveal it.

In March, 1894, a large effusion was found in the left pleural cavity, and the patient died a few days later. At the autopsy a large fusiform aneurism of the descending arch and thoracic aorta was found to have ruptured into the left pleura. Careful microscopic examination of the brain and cord gave no decided result. Unfortunately it was impossible to use the more modern stains, and the Weigent process was used.

Hysterical Amblyopia and Amaurosis.[4]

We may define hysteria to consist of such a condition of the general nervous system, original or acquired, as renders it capable of simulating most local diseases, of complicating them in their progress, and modifying them in their usual phenomena. Defective vision is one of the less familiar forms. This special form of functional trouble, not due to alcohol or tobacco, is by no means a common one; this is especially true in regard to the cases of amaurosis; those of amblyopia and narrowing in the fields of vision being more frequently met with. The onset is usually sudden following a shock, and there is usually more or less photophobia, and sometimes anæsthesia of the cornea. Local examination shows no other symptoms. Complaint is made of ocular or supra orbital pain and great sensibility to light. There may be absolute loss of sight, generally in one eye, or only amblyopia and reduction of the field of vision.

Four cases of this condition are reported, the treatment by hypnotic suggestion alone being successful in three of them; but the fourth, although somewhat relieved by this, was cured only after the expulsion of a tapeworm by malefern. A fifth case was totally unaffected by hypnotism.

In the discussion which followed, Dr. Prince of Boston stated that hysterical patients when hypnotized could often accurately describe sensations, sounds, and appearances which they had been impressed with in their normal condition, but had at that time seemed ignorant of.

Spot Specialism.[5]

Refers to that kind of professional thought that confines its observation too exclusively to a particular locality, organ, or group of organs.

The general medicine of Hippocrates, and followed by that of Sydenham, blamed the liver for most of the diseases, and Abernethy traced everything to a disordered stomach.

Nervous atony precedes as well as follows hepatic torpor and dyspepsia, and malaria is a frequent cause of the atony and congestion.

When one is ill the entire system is more or less in need of attention; not simply the most afflicted spot.

In treatment of constipation we now see the need of drugs, such as nux vomica and belladonna, to impress the whole system, instead of relying on mere cathartics.

Neurasthenia and brain exhaustion are often the forerunners of dyspepsia, and the resulting distension of the stomach by gases leads in turn to irritable heart and disturbed respiration.

Numerous other disorders are mentioned, and the influence of a disturbed nervous system is easily traced in most of them.

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[4] J. Arthur Booth, M.D., *Journal of Nervous and Mental Diseases.*

[5] C. H. Hughes, M.D., *Alienist and Neurologist.*

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

Pseudo-Chancre.

Gottheil, in a paper read before the Section of Dermatology and Syphilography of the American Medical Association (*New York Medical Journal*, September 28th, 1895), concludes:—

Reinfection syphilitica does occur, but the recorded cases that are entirely trustworthy are very few indeed. Analysis shows that most of the alleged cases are open to grave doubt, and that some of them are manifestly errors of diagnosis.

The following lesions may simulate chancre:

a. Artificial indurations caused by irritants applied to simple lesions.

b. Nodular lymphangites, as occur in gonorrhœa.

c. Scabies, where penile lesions are the rule.

d. Secondary indurations at the site of the initial lesion (Fournier's pseudo-chancre).

e. Secondary syphilitic papules or tubercles situated upon the genitals.

f. Ulcerative gummata of the genitals.

g. Epitheliomata of the genitals.

Two such cases have recently come under the author's observation. In the first one a non-specific sore was irritated with cauterisants until it exactly resembled a sclerosis, and was so diagnosticated by competent authorities, Nevertheless it healed up under local treatment alone; and until now, two years after date, no secondary symptoms have appeared.

The other case was one of gumma of the penis in a subject in the tertiary stage of syphilis. The lesion resembled an initial one very closely, and was at first regarded as such; but a close examination showed the presence of evidences of past specific disease, and this was confirmed by the history. The entire lesion melted away under the iodide of potassium.

Conclusions:

1. There is no characteristic sign, and no characteristic combination of signs, that enables us to diagnosticate a chancre from the lesion alone.

2. Only the advent of other syphilitic symptoms enables us to form an opinion as to the presence of systemic infection.

3. Almost all the alleged cases of syphilitic reinfection are of doubtful validity; and most of them are pseudo-chancres belonging to one or other of the above varieties.

Motor Aphasia.

Prevost (*Rev. Med. de la Suisse Romande*) describes a case of Jacksonian epilepsy accompanied by motor aphasia but without agraphia, conclusively proving that the former may exist without the latter. The patient was a man of about 60, who had suffered from neurasthenia with indefinite symptoms for some years. He began to experience a difficulty in expressing himself; this was followed by an epileptiform attack with complete loss of consciousness, and afterwards by a series of fits. In these the patient hesitated in his speech, took his chin in his left hand, turned the head convulsively to the right, and had an access of clonic convulsions in the right facial region, with grinding of the teeth. The fits occurred every fifteen minutes and lasted about one minute and a-half. They were followed by temporary loss of speech, and at the end of a day by lasting aphasia. The intellect was throughout unimpaired, and he was able to write freely without hesitation or mistakes, and to write what had been dictated to him during the fit immediately afterwards. There was no paralysis nor alteration of sensibility whatever. A syphilitic lesion, probably a gummatous tumor, involving Broca's convolution, was suspected, but a very doubtful history of the disease was obtained. The treatment was gr. x of pot. iod. every three hours, and two mercurial inunctions daily. The fits ceased abruptly after lasting over a week; speech returned at once, all neurasthenic and other symptoms disappeared, and in a few months he was practically cured. Six months later the symptoms returned, but were marked by an attack of complete right hemiplegia which supervened. Subsequent treatment had proved ineffectual. The aphasic phenomena were remarkable, being unaccompanied by paralysis during the attacks, or by word-blindness, word-deafness, or verbal amnesia. The patient could always read and write, except after one or two major epileptic attacks. The condition is rare, the centres of speech and writing being so closely placed that they are generally involved in the same lesion. The question is discussed whether there exist in the brain special accessory centres developed by use, and whether the multiple centres said to preside over the function of language are among these. There is too great a tendency to regard language as a special and isolated phenomenon among the manifestations of the nervous centres, and the development of an automatic act, such as writing, may be simply controlled by a special adaptation of conducting fibres uniting the different sensorial centres. A study of aphasia in violinists, pianists, typewriters, and others trained to express their ideas by automatic means involving more highly specialized action than writing, may help to elucidate the true theory of this subject.

Epidemic Cerebro-Spinal Meningitis.

Righi (*Rif. Med.*) reports three cases of this disease in which he found the diplococcus of Fraenkel in the blood, the urine, and in one of the cases in the fæces. In each case the diplococcus was actively virulent and gave rise to cultures which proved active upon inoculation. The cases occurred in children of 16, 3, and 13 years respectively, and formed part of an epidemic of the disease which occurred in Sassari. The first two patients died; the third, which was a milder case, recovered. But even in this case the diplo-

cocci were freely found in the blood and urine, so that it cannot be said that the diplococci are only associated with severe cases.

Quadu (*Rif. Med.*, July 8th and 9th, 1895) reports another case (one of the same epidemic) in a child aged 6, who recovered, and in whose blood the same diplococcus was found. This case was also interesting from the fact that it was complicated by the development during the disease of a periarticular abscess about the left knee-joint and by a left otitis media with perforation. In each case the pus contained the diplococcus, that of the ear also containing the staphylococcus cereus albus and a slender somewhat recurved unfamiliar bacillus. In addition to the otitis and abscess the patient also suffered from arthritis of the right shoulder-joint.

Colomel as a Substitute for Iodoform.

An Italian physician, Dr. G. B. Percacini, is in the habit of replacing iodoform by calomel for dressing all kinds of wounds and sores, more particularly ulcers of the leg, as well as eczemata resisting ordinary treatment. When, applied, in the form of powder, to a wound which has first been thoroughly cleansed, this substance forms an antiseptic crust, strongly adheaent, and when this becomes detached the wound is found to be completely cicatrised. According to Dr. Percacini, the use oi protochloride of mercury for dressings is contra-indicated only in cases of wounds and sores with excessive secretion, seeing that in such cases the puss would be retained under the crust formed by the powdered calomel.

SURGERY.

Insomnia in Surgery and its Treatment.

Van Schaick (*New York Med. Journ.*, March 2, 1895) directs attention to the various forms of insomnia met with in surgical practice. The fear of an impending operation, though no longer so intense as in preanæsthetic days, is yet an important factor in some cases, and hence requires treatment. The author knows of no better hypnotic for this purpose than trional given in a 15-grain dose, followed up if necessary by another one within an hour. This drug is preferred on account of its comparatively rapid action, of its lack of after-effects, and of the deep sleep it induces. It has also been found very useful in cases of depreciated nervous condition due to exhausting diseases and pain, in which chloral, though a more effective sleep producing drug, is contraindicated from its action as a heart depressant. Restlessness and jactitation occurring after an operation without serious shock—a condition probably due to relaxation of a highly-strung nervous condition—may also be relieved by trional in moderate doses. Abdominal section, in which thirst is apt to complicate the other nervous disturbances, is also very frequently followed by insomnia of a more or less severe type In two instances of this kind trional given by the rectum has in the author's hands proved quite successful. This drug is further recommended in cases of insomnia due to certain pathological nervous conditions which may complicate surgical disorders—such, for instance, as alcoholism, arterio-sclerosis causing intracranial headache, insanity, tabes, and other diseases of the cord, and the results of the abuse of narcotics.

NEWS AND MISCELLANY.

OFFICIAL LIST OF THE CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING OCTOBER 15, 1895 :

R. D. Murray, surgeon, granted leave of absence for thirty days, October 4, 1895.

Fairfax Irwin, surgeon, granted leave of absence for thirty days, October 4, 1895.

C. E. Banks, P. A. surgeon, detailed as Chairman Board for physical examination of officer and candidates Revenue Cutter Service, October 2 and 8, 1895.

S. D. Brooks, P. A. surgeon, when relieved from temporary duty at St. Louis, Mo., to rejoin station at Chicago, Ill., October 3, 1895.

L. L. Williams, P. A. surgeon, to proceed from Charleston, S. C., to Waynesville, Ga., as inspector, October 2, 1895.

G. M. Magnider, P. A. surgeon, upon completion of duties at Camp Jenner, Eagle Pass, Texas, to rejoin station at Galveston, Texas, October 11, 1895.

J. O. Cobb, P. A. surgeon, to proceed to Victoria, B. C., and Vancouver, Wash., on special temporary duty, October 12, 1895.

B. W. Brown, P. A. surgeon, detailed as Recorder of Boards for physical examination of officer and candidates Revenue Cutter Service, October 2 and 8, 1895.

E. R. Houghton, P. A. surgeon, granted leave of absence for thirty days from date of being relieved from duty at Vineyard Haven, Mass., October 5, 1895.

Emil Prochazka, assistant surgeon, when relieved from temporary duty at Charleston, S. C., to proceed to Cairo, Ill., for temporary duty, October 12, 1895.

A. R. Thomas, assistant surgeon, relieved from temporary duty at New Orleans, La, and directed to rejoin station at St. Louis, Mo., October 3, 1895.

J. B. Greene, assistant surgeon, relieved from temporary duty at Wilmington, N. C., and directed to proceed to Vineyard Haven, Mass., and assume temporary command of the service, October 2, 1895.

RESIGNATION.

E. R. Houghton, passed assistant surgeon. Resignation accepted, to take effect upon expiration of leave of absence, October 5, 1895.

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ORIGINAL ARTICLES.

THE TREATMENT OF DIPHTHERIA WITH DIPHTHERIA ANTITOXIN.*

EDWIN ROSENTHAL, M. D., PHILADELPHIA.

To Robert Koch and his associates is the honor due for laying the foundation that led to the discoveries of the various pathogenic micro-organisms—tuberculosis, typhus, diphtheria, cholera, etc. In his work (*Untersuchungsmethoden von pathogenen Organismen*), Koch gave an impetus to the study of bacteriology, which at the present time is the common property of the scientific world. The etiology of diseases was investigated; the results of these investigations demonstrated and proven. The diagnosis of diseases was by the means of bacteriology rendered easy and certain, and now the realms of the therapeutists have been invaded and the bacteriologists give to the clinician new remedies and new methods. This transition is the natural sequence of the present doctrines concerning the infectious diseases.

When the causes of diseases were proven, then came the study of a preventive, and thus was laid the groundwork for a rational prophylaxis. The discovery of tuberculin by Koch may be called the foundation-stone upon which all the later discoveries have been laid and which has led to that newest method—the serum-therapy of Behring and others.

Loeffler (a student of Koch) was the first to isolate and cultivate the microorganism of diphtheria which had been previously discovered by Klebs, and bears the name of Klebs-Loeffler. Discovered in 1884; small, slightly-curved rods about as long as the tubercle bacilli and twice as broad, possessing no movement; do not liquefy gelatin; are not very resistant, being destroyed by a temperature of 50° C., but they have lived in blood-serum five months; grow readily on all media between temperatures of 20° and 40° C. They are facultative anærobic, and grow quite rapidly and profusely, and may be cultivated on gelatin plates, glycerin agar (stab-culture), potato (on alkaline surface—a grayish layer in forty-eight hours), and in blood-serum (after Loeffler). "Blood-

* Read before Philadelphia County Medical Society, September 11, 1895.

serum 3, bouillon 1; the bouillon contains peptone 1 per cent., chloride of sodium ½ per cent., and dextrine 1 per cent." Is not colored by Gram's method; stained best with Loeffler's alkaline methylene-blue (M. U. Ball.—*Bacteriology.*

Loeffler, as well as Roux, Yersin and Sydney Martin, have further investigated the disease. Their experiments have proven that it is not the mere presence of the bacilli that gives rise to all the symptoms we meet with, but their products; that is, the ptomaines or poisonous substances produced by it.

Roux and Yersin substantiated their theory by separating the bacillus from the ptomaines, and subjecting it to chemic analysis and physiological test. They described the disease as a toxæmia differing from others in the respect that the toxic acts as a ferment, which when injected into living tissues even in the most minute quantities ushered into existence certain well defined albuminous substances or bodies. These albuminoids were isolated by Sydney Martin from various organs obtained from persons who died from diphtheria. The substance when secured was subjected to alcohol and resolved itself into a proto- and dextro-albumose, which he injected into rabbits. In doses of 0.117 per kilo it produced a febrile condition and œdema in the animal; slightly increasing the amount to 0.112 per kilo rapid death of the animal followed. Intravenous injections produced fever, progressive paralysis, and degeneration of the heart, nerves, and muscles, precisely analogous to those conditions resulting from diphtheria.

Breiger and Fränkel, as well as Proskauer and Wasserman, busied themselves with the further chemistry of the disease. Breiger and Fränkel, through frequent precipitation of the culture-bouillon with acetic acid and alcohol, obtained a white amorphous body which gave all the reactions of an albumin. It is soluble in water, and decomposes by high temperature.

These "toxins," as well as "antitoxins" or substances that establish immunity to specific diseases in animals, have been shown by Buchner to be probably the direct products of bacterial cells.

These results, on the investigation of the products, gave rise to further experiments, and Roux, in France, Breiger and Fränkel and Behring, in Germany, pursued the same studies leading to immunization.

Breiger and Fränkel, by injecting 10 to 20 c.cm. of a three weeks' old culture of diphtheria bacilli which had been heated to 70° C. for one hour, produced an immunity in guinea-pigs against the virulent form.

Behring found several ways to make animals immune. One method was to inject them with diphtheria and then inject trichloriodine in them, which prevented them from dying, and they were then immune.

The immunity of individuals against disease is understood to depend upon the destruction, by certain agents, of the supposed living cause of the disease. These agents may also act by hindering the growth of the living cause or by destroying its infectious properties by the destruction of the poisonous material produced in the infected organism, or by imparting a higher resisting power against this poisonous material.

Behring's serum-therapy is based upon these ideas and depends upon his own discovered fact: that we can, through subcutaneous injections of the blood of animals which are rendered immune from certain bacteria, render other animals immune against inoculation of the same bacteria; and not only does such an injection (*impfung*) protect the animal against living bacteria, but against their "toxins," as has been pointed out by Behring and Kitasato for tetanus bacilli and tetanus toxins.

This discovery of Behring's is the beginning of a new epoch in the science of immunization. Until this period immunization could only be obtained by giving the animal attenuated bacteria cultures, or solutions of cultures freed from living organism. Pasteur's methods of immunization against hydrophobia and anthrax depends upon the results of these experiments, immunization being obtained by having the individual go through a weaker or modified form of the disease, similar also to vaccination against variola with cowpock (vaccine virus). The result of passing through a milder form of disease is to protect the

individual against an infection of a more virulent matter, as vaccinia modifies variola, with the result, if there be infection, varioloid.

Behring's method is entirely different; where formerly a disease was produced to protect from a more virulent disease, now is injected into the organism a substance, harmless in itself, which protects the individual not only against infection, but, if already infected, from its results. To this he has given the name "antitoxin," for his assertion that another name, "gegengift" —against poison—might lead one to the belief that the antitoxin was in its name and nature a poison, a point which he emphatically desires to be known (*Das neue Diphtheriemittel*, Behring, 1894, page 10.)

It is, therefore, an entirely different process of immunization from Pasteur's.

In Pasteur's method every individual receives a special virus for a special case to render immunization. In Behring's method the one virus (serum), if it has immunization power, is capable of transmitting immunization to a whole series of cases. This has been proven in diphtheria and tetanus.

Ehlich proposes the names active and passive immunization, to distinguish those who have been immunized with serum and those with the cultures of the disease. In the latter, the passive immunization is not lasting, because the individual has had no work put upon the cells to become immune, but has received the ready-made serum; as long as it is in the blood, so long is there immunization. In the active form the individual has obtained immunization by labor obtained through the activity of its own cells. He holds this property longer. To substantiate this theory he gives as example of those individuals who have passed through an infectious disease, become immuned, and retain immunization throughout life. I give as examples of his theory—vaccinia against variola—where varioloid may result for the passive; scarlatina against a reinfection for the active immunization.

The antitoxin, or "gegengift," which, to the blood of immunized individuals gives that specific protection, acts specifically, so that tetanus antitoxin protects only against tetanus or diphtheria, antitoxin against diphtheria.

Diphtheria antitoxin serum is obtained from the blood of animals rendered immune to the disease by the prolonged injection of minute, but gradually increasing quantities of diphtheria "toxin," a fluid obtained by the cultivation of the diphtheretic bacilli in nutrient broth (*Blutserumtherapie und Geschichte der Diphtherie*, Behring).

The principles of Behring's method is followed by Roux and Aronson, as well as those that are making it in this country.

Of the precise method of obtaining the diphtheria serum: "The method first employed by Behring for the immunization of animals and consequent production of 'antitoxin' in their blood was one by which the animals were immunized to the activities of the bacillus and able to resist its growth in the body. For this purpose, dogs, goats, and smaller animals were injected first with cultures of diphtheria, containing only the dead bodies of the bacilli killed by heat. When these could be tolerated without any considerable local irritation, living cultures attenuated by heat were introduced to pave the way for virulent organisms, which were withheld until the vital resistance acquired was sufficient to prevent them from causing death. In this way Behring was able to produce immunity in animals ordinarily susceptible to the disease, and to discover in their blood a substance, which, when secured in solution in clear serum, and introduced into animals suffering from the disease, seemed potent to neutralize the diphtheria poison and enable the animals to recover. Behring, however, foresaw that the chief source of danger in the infection was the toxic product of bacillus, not the bacillus itself, and that a stronger serum—*i. e.*, one possessed of more of the antitoxic substance—was required to save the lives of animals into which the toxin was injected, than to save those inoculated with living bacilli.

"In the incubator in his laboratory Behring had a flask of bouillon which, having been inoculated with diphtheria bacilli, had been allowed to remain undisturbed for two years. From it every living bacillus had disappeared, the nutrient having been exhausted. Repeated experiments showed the culture

absolutely sterile, yet so great were its toxic powers that 0.1 c.cm. injected into a 500-gramme guinea-pig would cause death in twenty-four hours.

"This prodigiously powerful poison was that used in the antitoxin experiments, and all Behring's energies were devoted to the production of a neutralizing substance so strong that a small quantity of it would suffice to neutralize a large quantity of the poison. So successful was Behring in his experimentation as to be able to produce an almost incredible amount of protection for guinea-pigs, both against inoculation with living bacilli and injection of the poison." (Diphtheria Antitoxic Serum, H. K. Mulford Co.) In this city diphtheria antitoxic serum is manufactured by the H. K. Mulford Co., under the direction of Dr. Joseph McFarland, lecturer on Bacteriology in the Medical Department of the University of Pennsylvania. Their bacteriological laboratory has been fully equipped for this purpose, and is situated near Fairmount Park. I have been enabled to visit this laboratory, and Dr. McFarland very kindly showed me the entire work of this establishment. The horses used for his purpose were under the supervision of Dr. Leonard Pearson, Professor of Theory and Practice of Veterinary Medicine in the University of Pennsylvania. The products were not only standardized in the laboratory, but also by the Department of Hygiene in the University of Pennsylvania.

For the manufacture of the antitoxin, Dr. McFarland pursues Roux's method. This depends upon the continuous and progressive introduction of a very powerful toxin into a non-susceptible animal, and the production, in this animal, of the antitoxin, by the stimulated cells of the tissues and blood. This method is pursued by him as follows: From numerous cultures of the *bacillus diphtheriæ* a particular virulent one is chosen. To be very virulent $\frac{1}{2}$ c.cm. of a twenty-four-hour-old bouillon culture should kill a 500-gramme guinea-pig in from twenty-four to thirty-six hours. With this bacillus a large flask of alkaline, 2 per cent. peptone bouillon is inoculated and placed in the incubator. At the end of twenty-four to forty-eight hours about 40 c.cm. of this culture are added to each of a number of very wide, flat flasks, with long necks and a tubulature at the side (Fernbach flasks), each containing about one litre of similar bouillon.

These flasks after being inoculated are also placed in the incubator for twenty-four hours, until the growth be well established, after which the cotton plugs, which have closed the mouth and tubulature, are pushed well down the tubes, rubber corks containing a glass tube inserted above the cotton, and the tubes connected with an aspirating apparatus, by which a current of air is kept passing through the flasks from mouth to tubulature.

The object of this seems to be twofold. Fernbach, the inventor of the method, observed that the liberation of metabolic products of micro organisms keeps pace with their vegetation, and is at its maximum when the bacilli are multiplying and dying with great rapidity, the death of each organism seeming to liberate the poison which its protoplasm contained. The primary object of the Fernbach flask was to supply the appropriate conditions for rapid vegetation by a current of fresh air. It can be readily observed that from massive cultures of diphtheria, in liquid media especially a pungent odor arises. The second function of the current of air is to remove this effluvium. In order not to dry up the culture medium, the air passing through the flasks is first made to pass through a wash-bottle, contaminating micro-organisms being excluded by the cotton-plugs in the neck of the flasks and in the tubulature. The flasks thus arranged are kept in an incubator at a temperature of 32° C. for three to four weeks, after which the toxin supposed to be virulent is filtered and tested. The filtration of the toxins is a matter requiring considerable care as regards the filtrate, which although devoid of bacilli when passed through the filter, is as good a culture medium for bacteria other than the diphtheria bacillus as ever. The filter used is the Chamberland. The strength of the toxin is estimated by injecting into guinea-pigs, the desired strength being sufficient for 0.1 c.cm. to kill a 500-gramme animal in twenty-four hours.

If the filtered toxin be of the desired strength it can at once be used. If,

however, as is the case in a great number of instances, the toxic prove weak, it should be rejected.

The animal employed by Dr. McFarland is the horse. Before beginning the treatment, it must be tested for tuberculosis and glanders with tuberculin and mallein. Much individual variation occurs among horses in their susceptibility to the action of the toxins, hence it is always well to begin the administration with a very small amount. Roux begins with 0.5 c. cm., and repeats the injection about every eight days, according to the condition of the animal, doubling the amount as often as possible, and as rapidly as possible ascending to the enormous amount of 200 to 250 c.cm.

The condition of the horse during all this time must be carefully watched and estimated. The injection generally causes fever, which cannot be borne too long without danger. The appetite must be carefully noted. The animals should be weighed at rather frequent intervals. All these precautions are necessary to keep the horses from falling into a condition of cachexia, from which they recover with difficulty, if at all, and in which they can yield no antitoxin, because the blood is saturated with toxin, not antitoxin.

When the treatment has been kept up for three or four months, and the animals have reached the point at which they can stand the injection of 200–250 c.cm. without other general or local symptoms than a large œdema at the point of injection, they are about ready to furnish antitoxin of value.

A trocar, with a canula attached to a rubber-tube, is passed into the jugular vein of the animal, and the blood allowed to flow through the tube into sterile glass jars prepared to receive it.

The jars are stood upon ice, after the blood coagulates, for two days or more, until the serum separates. The clear serum is withdrawn by the pipette and placed in sterile receptacles.

As with the toxins, so with the antitoxins, disappointment is liable to meet the experiment at the last moment. All the horses will not furnish the same degree of antitoxicity in their serum; and the test, which must be performed upon guinea-pigs, will sometimes show that the serum from the horse, most carefully treated, is entirely devoid of antitoxic power.

If properly carried out, without haste, the horse being kept in good condition, the power of the serum should be sufficient in an almost infinitesimal amount to protect a guinea-pig against the ordinary fatal dose of diphtheria toxin. The exact value of the serum obtained by Roux's method, to make it equal the accepted standard, is that one part of it shall protect against ten times as many parts of the standard toxin. Thus, if 0.1 c.cm. of the toxin will kill a 500-gramme guinea-pig, 0.01 c.cm. of the antitoxic serum should cause the animal to recover. As ordinarily expressed, 1 gramme of the antitoxin will protect 50,000 grammes of guinea-pig against what would ordinarily be a fatal dose.

By injecting the toxin into a vein, and carrying out the immunization for a longer period of time, a stronger antitoxic value—even twice as strong—can be produced. As, however, a severe urticaria follows the injection of this serum into human beings, its use is not so desirable as the weaker serum.

Serum thus obtained may be kept for quite a while before using. To keep it sterile some antiseptic has been added, as carbolic acid, trikresol, camphor, or the like.

The serum does not retain its power indefinitely, but gradually loses it.

On the method of using the antitoxin:

The antitoxic serum is used as a curative or immunizing agent by subcutaneous injection into the tissues of the body. The parts chosen by myself, and advised by those who have first used it, is in the back between the scapulæ on either side of the vertebral column. Other parts of the body, as the loins, groins, or sides of the chest, have been selected. The parts are thoroughly cleansed by means of alcohol soaked upon sublimate cotton or gauze, and after injection is hermetically sealed with iodoform collodion. For the purpose of making these injections I have used first a horse hypodermic syringe, requiring, however, two injections, as its capacity was but 5 c.cm. Later, I used a Koch 10-c.cm. syringe, and at the present time I am using a hypodermic syringe made for this purpose by the

Mulford Company, its capacity being 13 c.cm.

The amount of antitoxin used depends upon the time of making the injection, the age, and body weight of the individual, and the gravity of the disease; also whether for the purpose of immunization or cure. In these methods I have followed the directions of Behring, as given in his announcements with every bottle of the antitoxin.

In the first two days of the disease, if the case be one of average severity, I give an injection equivalent to 600 antitoxin normals. No matter what may be the strength of the antitoxin, I fix my dose to suit this equivalent. For the purpose of better understanding this, I may add that whilst the antitoxin as manufactured by Dr. McFarland has a certain strength, *i. e.*, each gramme being equal to 100 antitoxic normals. Behring has antitoxin of three strengths, *i. e.:* 1. Each gramme representing 60 normals; 2. Each gramme representing 100 normals; 3. Each gramme representing 150 normals. Aronson's antitoxin has the same strength as Behring's No. 3, *i. e.*, each gramme representing 150 normals. Roux's antitoxin is equivalent to Behring's No. 2, each gramme representing 100 normals; and another antitoxin, to which I give the name of Dr. J. Solis-Cohen, has the same equivalent as Behring's No. 3. Of Gibier's antitoxin I know very little of its strength but the assertion that it equals Roux's. This, however, cannot be substantiated, for an extremely large quantity (25 c.cm.) is necessary as a curative injection, which if its strength were such would be unnecessary. It would be superfluous to add the directions which come with each variety of antitoxin; it is sufficient to know the strength in antitoxic normals, to know how to apply it. To resume: If the case be seen on the third day, or if at the beginning the infection be such that leads one to believe in the necessity of prompt treatment, as in laryngeal cases or where the lymphatics be involved, I immediately inject 10 c.cm. or the eqivalent 1000 antitoxic normals. I then await results. If in six to twelve or even twenty-four hours no change takes place or the symptoms are aggravated, I inject again 1000 antitoxic normals of the serum, and so on until there be an amelioration of the symptoms shown by a decline of pulse-rate and temperature and an improvement in the general condition. I have noticed another sign which is manifested from six to twelve hours even before the pulse and fever decline and which teaches me that I have used sufficient antitoxin, and that is a blood-red line surrounding the diphtheritic patches in the throat, this line so distinct that it shows the demarcation between the healthy and infected mucous membrane. When this is visible my experience has taught me to expect a very favorable result in the particular case. The quantity of antitoxin administered can increase to enormous dosage; being harmless, no danger can be comprehended. To what quantity it has been used in one single case my statistics will show. My own statistics show that 2000 antitoxic normals were sufficient in the most serious cases.

The question might arise, What is an antitoxic normal? An antitoxic normal or immunity unit is an amount of antitoxic serum required to save a 500-gramme guinea-pig from the minimum fatal dose of diphtheretic toxin. The number of immunity units per c.cm. gives a standard strength of the serum; for instance, $\frac{1}{100}$ c.cm. will protect a 500-gramme guinea-pig, therefore 1 c.cm. would protect 50,000 grammes or 100 guinea-pigs against the minimum fatal dose; 1 c.cm. of antitoxic serum, which protects 50,000 grammes of guinea-pig, contains 100 antitoxic normals or immunity units, and would protect an individual weighing 100 times as much as a guinea-pig (about 120 pounds), if the susceptibility were the same. As the susceptibility might be the same I give an injection, as an immunizing dose, of 100 antitoxic normals (immunity units) to perfectly healthy individuals exposed to the contagion of diphtheria. That this theory is the correct one and my dosage the correct dose, since I have practised this Behring (Meister Lucius and Brüning Höchst a. M.) has placed before the profession another bottle which he terms No. 0, containing 200 antitoxic normals (immunity units) for immunizing purposes. This he terms an immunizing dose, and is sufficient for

healthy children and adults. It protects them against exposure, and even if exposed and show evidence (Loeffler bacilli) of such exposure. To protect individuals who may be exposed by coming into the neighborhood of such infection one-half of this quantity, 100 antitoxic normals (immunity units), is sufficient. To further protect individuals who have been immunized Behring orders that the dose be repeated in eight weeks.

The question now arises, Is diphtheria antitoxic serum a cure for diphtheria? For diphtheria pure and simple where there exists no other infection, I am prepared to say yes. Where, however, other infection exists, manifested by other symptoms, demonstrated by other indications, and proven by bacteriological examination, I must modify this reply, and though my success and statistics have been extraordinary, I think it only proper and truthful to say that this is due to a recognition of the other complications, and a prompt and careful specific treatment of the same. It is, therefore, a very rational explanation of the brilliant results which the early use of antitoxin has given. When used before the diphtheria toxins have so invaded the tissues as to destroy them, antitoxin is a specific. But where the complex symptoms are such (the degenerations of muscles and nerves, or the toxæmia or septicæmia) that life cannot exist, this or any other method of treatment cannot cure. Understanding diphtheria with all the complications that can arise (infection from streptococcus, staphylococcus, pneumococcus, etc.) I modify the treatment and pursue the following method:

After injection of the serum, whether the case was one requiring intubation or not, whatever the variety may be, I immediately ordered a purgative to rid the alimentary canal of any infectious bacilli. For this purpose I give calomel combining it with salol. I give it hourly, in suitable dosage, until characteristic evacuations, when I cease its administration. At the same time, I administer a judicious amount of stimulants and food. If any complication exists which by its presence endangers life, I administer the antitoxin, but I pay no more attention to the diphtheria except the stimulation and treat that symptom. For example, if it be a pneumonia, my whole energies are directed to that, or if it be a nephritis, my whole treatment is directed toward the kidneys. That this is the correct method my recovery of the cases can demonstrate. In one case of pneumonia, in the practice of Dr. Metzler, our treatment was mainly directly to the lung infection, and the result was a cure. The same incident was noted in the practice of Dr. H. H. Freund. In a case of tubal nephritis (acute), seen by Dr. Van Gasken (health inspector of the district), no other remedial agents were employed but those commonly used in such affection. I can, therefore, safely assert that whilst antitoxin is a specific in diphtheria, it is not a cure-all, and if reliance be placed on this remedy alone disappointment will be the rule instead of the exception. That diphtheria antitoxic serum has curative virtues, none who understand the clinical manifestations of the disease should deny; still there are many who by word and pen decry its virtues and give to it credit for nothing, and even go so far as to place to its credit downright harm. I have been enabled to gather as many of these monographs together as I could, and to see upon what grounds this antagonism exists. To combat these assertions, I had prepared a list of questions containing also the points upon which the antagonists of antitoxin lay particular stress. These questions I have sent to as many physicians as I was able, and who I learned have used the serum, with the purpose of coming to an accurate and truthful conclusion. Besides this, I sent the same questions to the hospitals of different cities with a chart asking for statistics, etc. Whilst my colleagues in private practice have been both kind and prompt in their responses, I must regret to say that I will be unable to give the statistics of the different hospitals, for the simple reason that while the question may be of vital interest to us as private practicing physicians, a sort of red-tapism protects some of the hospitals from exposing their statistics, and where I really expected some co-operation a lack of consideration or probably other and more valuable duties prevented such a request being granted. However I

strove to make this omission good by requesting the Board of Health of three of our large cities for statistics which might answer somewhat my purpose. Mr. Turner, of our Board of Health, kindly referred to Dr. Taylor, who referred me, etc., and consequently I cannot produce Philadelphia statistics; Dr. Roger S. Tracy, Register of Records, the New York Board of Health with New York; and Dr. S. H. Durgin, of the Health Department, Boston, Mass., with Boston. The questions I gave to each were precisely the same, and were a request of the returns received in each office of a case of diphtheria, as well as the returns of the deaths, for each month from 1886 until the present month.

The original chart with the answers I have appended to this paper. As it would be both cumbersome and tiresome to read these statistics before you, I have curtailed them into percentages, and present them in this manner. I have taken the first six months of each year, and have classed the year 1895 the serum year. Whilst these statistics have not realized our expectation as to show an extraordinary reduction in the death rate, they have, however, shown such a reduction that would lead one to suppose that some factor was at work to produce such a result.

Statistics and percentage made from report from Dr. Roger S. Tracy, Register of Records, New York Board of Health.

For January, February, March, April, May, and June.

	CASES REPORTED.	DEATHS RETURNED.	PER CENT.
1886	1763	834	47⅓
1887	2730	1175	43 1/20
1888	3965	1188	29 9/10
1889	4440	1173	26⅓
1890	2613	710	27⅛
1891	2463	658	26⅔
1892	2854	790	27⅔
1893	2961	924	38⅛
1894	5344	1433	26
1895 (Serum year)	5354	959	17⅞

Statistics and percentage from Mr. S. H. Durgin, Chairman Board of Health, Health Department for Boston. For January, February, March, April, May, and June.

	CASES REPORTED.	DEATHS RETURNED.	PER CENT.
1886	569	154	27 1/15
1887	561	154	27½
1888	656	228	34⅞
1889	1082	302	27 9/10
1890	970	258	25⅔
1891	411	104	25⅓
1892	643	208	32⅓
1893	651	197	30⅓
1894	1001	306	30⅗
1895 (Serum year)	1578	251	15 14/15

Comparative statistics of percentage between New York City and Boston, Mass.

	NEW YORK CITY.	BOSTON, MASS.
1886	47⅓	27 1/15
1887	43 1/20	27½
1888	29 9/10	34⅞
1889	26⅓	27 9/10
1890	27⅛	25⅔
1891	26⅔	25⅓
1892	27⅔	32⅓
1893	31⅛	30⅓
1894	26⅔	30⅗
1895 (Serum year)	17⅞	15 14/15

[TO BE CONCLUDED.]

EXTERNAL APPLICATION OF GUAIACOL IN ORCHITIS.

Pietro Pucci (*Gazz. d. Ospedali*) reports the case of a man, aged 66, who had suffered from repeated attacks of ague. Inflammation of both testicles suddenly came on without any apparent cause, and this was followed within two or three days by an acute attack of malarial fever. Sulphate of quinine was given for a week without any effect on the fever, while belladonna was applied to the testicles, equally to no purpose. An ointment composed of 2 g. of guaiacol and 20 g. of vaseline was then prescribed, about 2 g. of it being painted over the scrotum thrice daily, and the quinine being discontinued. The result was that the fever was almost at once subdued, and the orchitis was entirely cured in a week. The immediate effect of the guaiacol was an intense burning sensation at the place where it was applied. This lasted about ten minutes, but half an hour after the application the pain was distinctly mitigated, and finally ceased on the third day of the treatment.

COMMUNICATIONS.

CAUSES AND PREVENTION OF PUERPERAL FEVER.*

WM. E. GROUND, M. D., SUPERIOR, WIS.

The true infectious nature of puerperal fever, so-called, has within the last century dawned upon the minds of physicians so that instead of being considered next to suicidal for a woman to enter a maternity for confinement, a well-regulated maternity hospital is now considered one of the safest places in which a woman can be confined. At the Preston Retreat, in Philadelphia, there were more than twelve hundred deliveries without a death.

In 1843 Oliver Wendell Holmes said: Puerperal fever is so far contagious as to be frequently carried from patient to patient by physicians and nurses. Two or three years later, Semmelweiss attributed childbed fever to decomposing animal matter conveyed to the mother from without. Pasteur, in 1880, was the first to cultivate the streptococcus from the organs of women dead of puerperal fever. Similar observations were subsequently made by Fränkel, Winkle, Doderlein, Winter, Widal, and others, so that now there can be no doubt that the streptococcus pyogenes stands in a direct causal relation to most of the severe and fatal cases of puerperal sepsis. Widal found the streptococcus in a great variety of puerperal affections, including puerperal ulcers, endometritis, parometritis, peritonitis, septicæmia, pyemia, and phlegmasia alba dolens. Many other germs bear an important etiological relation to puerperal affections. Briger, and later Fehling, Doderlein, and others, pointed out the fact that a fatal puerperal fever might be caused by the staphylococcus, but, as a rule, this germ does not produce the severer forms of puerperal sepsis.

However, streptococci and stapylococci are frequently found existing together in these affections. Kronig, who is Doderlein's assistant at Leipsic, has obtained a pure culture of the gonococcus from the interior of the uterus in nine cases in which there was a slight febrile disturbance after labor. None of the cases were serious. Energetic research during the last few years has demonstrated that the diplococcus pneumoniæ, the bacterium coli communis, the micrococcus tetragonus, and the bacillus pyogenes fetidus, possess pyogenic powers.

Puerperal sepsis (or surgical sepsis occurring in the parturient woman) is an infectious disease due to germ inoculation of the wounds resulting from the separation of the decidua and the placenta, and from the passage of the child through the genital canal, in the act of parturition.

What affords these germs an opportunity to inoculate the bruised and abraded parturient canal? Do microorganisms exist normally in the uterus and vagina of pregnant women, or are they placed there by outside influences? Without referring to earlier investigators, I proceed to the consideration of the work of Doderlein. He examined the vaginal secretions of one hundred and ninety-four pregnant women, and distinguished two sorts of secretions, one normal and the other pathological. The normal secretion was found in 55.5 per cent. of all cases. It is a whitish, friable substance of the consistence of coagulated milk. The author thinks it is derived from the superficial layers of vaginal mucous membrane, the cells of which, when cast off and mixed with lymphatic fluid, form a white mass. The reaction of the normal vaginal secretion is intensely acid. The acid is lactic acid, and is derived from the tissue changes produced by a definite spe-

* Read before the Wisconsin State Medical Society, 1895.

cies of bacillus which is always present in normal secretions, and is called by him "vaginal bacillus." Besides this species of bacillus, Doderlein found in the normal secretion, in a large number of cases, a scizomycete or yeast germ, which he recognized as the germ of thrush, and which, as is known, grows in acid media. He found other micro-organisms, both saprophytic and pathogenic, in normal secretions, but only quite rarely, and he is of the opinion that the vaginal bacilli, inasmuch as they produce acid, render the vagina unfitted for the growth of other germs, and thereby protect it from infection. The author was able to support it by experiment. He introduced the staphylococcus pyogenes aureus into the vagina of a virgin in which the vaginal bacilli were present, and as early as the fourth day they had perished. The pathological secretion differs from the normal by being very fluid and yellowish-white, and containing pus corpuscles. Its reaction is only faintly acid, or neutral, or it may even be alkaline. In the pathological secretion the vaginal bacilli are supplanted by various other saprophytic and pyogenic micro-organisms. The author assumes that the pathological secretion is caused by an increased influx of alkaline tissue fluids, such as is occasioned by excess in venere, by pessaries, by frequent digital examinations, and by gonorrhœal cervical catarrh. Williams, of Johns Hopkins University, has practically substantiated the results of Doderlein. Kronig examined the vaginal secretion of about five hundred pregnant women, and found them to possess reactions of varying degrees of acidity. He found the bacterial flora usually found in the healthy vagina. In no case did he find pathogenic cocci. Kronig and Menge introduced streptococcus pyogenes and pyogenic staphylococci in large numbers into the vagina of pregnant and non-pregnant women, and found they disappeared in a short time. Their observations differ from those of Doderlein only in respect to the rapidity with which foreign organisms disappeared in the normal and pathological secretions. Irrigation of the vagina with water or with antiseptic solution diminished the rapidity with which bacteria in the vagina disappeared. Bacteria introduced into the cervix uteri likewise disappeared in a very short time.

Recently Walthard made some observations regarding the presence or absence of pathogenic micro-organisms in the genital canal of pregnant women, in the Obstetric Clinic of Bern. He found the secretions from the cervical canal to be directly antagonistic to the growth of germs, and that the vaginal secretions possessed antiseptic properties. The author regarded the cervical canal as the border-line between those portions of the genital tract that contain bacteria and those that contain none. An examination of the mucous found in the vagina occasionally revealed the presence of streptococci, with, however, a much less degree of virulence than the same germs possessed when derived from tissues in phlegmonous inflammation, or from the lochia in puerperal septicæmia. The virulence of streptococci found in the vagina is the same as that of the same germs found upon healthy mucous membrane in other portions of the body. They are, in fact, not virulent, but are saprophytic germs upon healthy tissue. They can, however, take upon themselves a malignant character when the resistance of the tissue is diminished, and become the infective germs of puerperal sepsis. In addition to vaginal streptococci, the staphylococci, gonococci, and the bacterium coli commune, produce puerperal sepsis. The bacterium coli commune is occasionally found in the amniotic fluid. The presence of these germs may turn the lochial discharge brownish and offensive, but this condition of the discharge does not necessarily point to sepsis. Highly virulent streptococci and staphylococci may be present on the exposed parts of the healthy body without doing harm, owing to the defences which have been set up against their invasion, and to the local and general resistance offered to their growth. These barriers may, however, be overthrown, and under these circumstances pathogenic bacteria, originally present on exposed surfaces of the body, may cause various local and general diseases. These are the conditions to which the absurd and meaningless term auto-infection is sometimes applied. The term

auto-infection has no place in a scientific discussion.

Summing up the results of the investigations of numerous and reliable observers, we may conclude that the normal vagina does not often contain pathogenic bacteria. With the exception of the gonococcus, such bacteria do not long survive the vaginal secretions. The practical deductions are that vaginal injections before labor are not only not necessary, but may actually favor septic infection in cases where antiseptic precautions are not carried out strictly. In rare cases with aggregate pathological secretions it may be necessary to flush the vagina with hot sterilized water daily before confinement.

In view of this there can be no disputing the fact that septic infection in the puerperal state occurs almost always from an imperfect aseptic technique on the part of the accoucheur or his assistants in the preparation of themselves or the patient for the lying-in ordeal. The term auto-infection is, strictly speaking, not a fact, and the condition is, therefore, a myth. The occurrence of puerperal sepsis is *prima facie* evidence that pathogenic germs have at some time gained admission to the maternal parts from without. That they are always placed there by the surgeon or his assistants is not an established fact. Prioleau insists that there are certainly inevitable forms of puerperal infection which defy rigorous antisepsis during labor and the puerperium. Infection is observed when the labor occurs in an infected or mephitic environment, when labor coincides with the development of an infectious disease, or when the patient has old lesions in or near the genital tract. The mechanism of this kind of infection is explained. Air charged with noxious principles enters the genital tract. The infected blood of the patient may bring germs to the placental wound in the uterus. Phagocytosis is weak when the blood is already infected, hence the germs develop rapidly in the wound. The primary infection is thus stimulated; an old genital lesion, abscess, etc., may be awakened, or an old wound or lesion outside the vulva may set up infection in the uterine wound, just as a blood lesion does when pre-existing. Dumont describes a type of puerperal infection from intestinal origin. The cause is alteration of the intestinal mucous membrane from pressure of the gravid uterus, and accumulation of fæces causing stasis and infiltration of the intestinal walls. The alteration consists in desquamation of intestinal mucous membrane, thereby favoring the advent of germs by removing nature's barrier. This alteration permits the bacillus coli communis to pass through the walls into the peritoneal cavity. The colon bacillus is a constant inhabitant of the intestinal canal, but where intestinal lesions exist they frequently invade the internal organs, causing all degrees of septic conditions.

Puerperal sepsis contains the same germs that any other septicæmia contains; the same micro-organisms which cause suppuration elsewhere. Surgeons formerly regarded a febrile reaction as a necessary accompaniment of the normal processes of repair after all surgical procedures; now they usually regard it as an avoidable blunder. Still, we do have a post-operative aseptic fever that occurs independent of pathogenic germs. This fever is characterized by the absence of inflammatory symptoms and with little constitutional disturbances.

In a large wound healing by first intention, we find not only extravasated blood and exuded serum, but minute fragments of tissue which have been separated from the surface of the wound during the operation, and are subsequently disintegrated and absorbed. These materials when absorbed exert a pyrogenic action upon the system. The exact nature of this pyrogenous substance is not clearly known, but the results of experiments seem to prove its existence in the fibrin generators and fibrin-ferment of the blood. At any rate their close relationship to living substances renders them but slightly injurious, and they produce in consequence only a mild type of fever.

The most common seat of infection is probably in the uterus itself. The sinuses at the placental site are occupied by large clots, which readily become infected, and from this location the putrefactive and septic elements are readily absorbed, owing to the highly active lymphatic circulation. The lacerated

vessels of the cervical canal are also plugged with similar though smaller clots. The cervical absorbents are not so highly developed, hence septic absorption cannot be so active at this point as at the fundus uteri. The comparatively lessened lymphatic circulation of the vulva and vagina render erosions and contusions of these parts less likely to communicate infecting material to the general circulation.

The character and gravity of a septic infection will depend, not only upon the nature and virulence of the infecting germ, but too, upon local predisposing causes and constitutional conditions which diminish the resisting power of the tissues, such as nephritis, valvular heart disease without compensation, syphilis, diabetes, intercurrent infections, and anæmia.

Briefly, we distinguish three principal types of infection: First, putrid intoxication or poisoning by toxines secreted by germs growing upon putrefactive foci, before these germs have themselves found their way into the blood. The process is due to the putrefaction of retained clots or placental or decidual fragments in the uterus. The poison may gain admission to the general circulation through the uterine sinuses or the denuded placental site, or through abrasions in the vaginal mucous membrane. This condition is the so-called sapremia of most authors, and is intended to be limited to the products of saprophytic germs, but I do not think we are justified in excluding the chemical products of pathogenic germs. The symptoms depend entirely upon the dose of the poison. The onset of the fever is generally within twenty-four hours. The preliminary chill is usually wanting, but there is a rapid rise of temperature to 101° or 103° F. The prompt removal of the putrefying material from the uterus is soon followed by a rapid fall of temperature, and a disappearance of all alarming symptoms. Sapremia follows most frequently manual expression of the placenta, prolonged and forceps deliveries, version, and extraction.

The second type of infection is bacterial invasion and ptomaine poisoning. The form of bacteria is not always the same, and any of the pyogenic germs may produce septicæmia. The most fatal type is that caused by the streptococcus. The next in order of virulence are the bacterium coli commune, the staphylococci, and the gonococci. These germs invade the uterine sinuses and the lymphatics surrounding them, and from here they penetrate the uterine parenchyma, to the larger lymphatics underlying the peritoneal covering of the uterus. The endometrium contains multitudes of bacteria swarming in its outer layers, while just underneath this layer we find an abundant round-celled formation of granulation tissue, which is the rampart thrown out by nature to prevent the further penetration of invading micro-organisms. In septicæmia the absorption is more gradual, and is aggravated by the more rapid development of the germs. This septic process may extend by continuity of tissue through the uterus to the tube and ovaries, setting up all forms of inflammation in them, and finally involving the pelvic peritoneum; or the septic infection may extend by the lymphatics through the uterine parenchyma to the pelvic cellular tissue, and ultimately causing a true pelvic abscess.

The third type of septic infection, pyæmia, is merely an advanced or aggravated stage of septicæmia, characterized by abscess formation, the localization of the septic material causing thrombi embolism, and subsequently multiple abscesses in the viscera and joints.

The sources of infection are, first, the midwife or nurse; second, the surgeon; third, the husband, or patient herself; fourth, the air.

Of all the sources of infection, I consider the midwife or nurse the most fruitful. Most of the puerperal cases I have seen have been attended by midwives. They use no antiseptic precautions whatever, making frequent vaginal examinations with filthy, unwashed hands. Untrained nurses are often in attendance at our confinement cases, and not infrequently make internal examinations of the woman about to be confined. Some do this to show that they know as much as the doctor; others, again, do it to ascertain the degree of dilatation, to aid them in determining when to send for the doctor. When engaged to attend a woman we should instruct her not to permit any

attempt at examination by the nurse or midwife, otherwise we cannot always prevent infection from this source.

That the attending surgeon is ever the cause of infection is greatly to be regretted. Happily, this is not as often the case now as formerly, but still it does exist. A physician of this age who attends a case of confinement with less preparation and care than he would bestow upon a capital operation, should be held culpable in case complications of a septic nature should arise. When called upon to attend a case of confinement, proceed at once upon true surgical principles. If time permits, have the patient take a full hot bath. Empty the rectum and bladder, the former by enema. The robe of the patient and the bedding should be absolutely clean. The surgeon should then render his arms and hands aseptic, paying especial attention to the subungual spaces. Ethereal soap and hot water should be used freely with a stiff, clean brush. Here it may be necessary to remind you of the danger lurking in questionable soaps and dirty nail-brushes. Nail-brushes should be kept clean and in an antiseptic solution when not in use. I have used ethereal soap with great satisfaction. The external genitals of the mother should be treated much in the same manner. After the scrubbing process has been gone through with, the surgeon's hands and the maternal parts should be rinsed in a solution of creolin. Aseptic towels should be pinned around the thighs and over the mons. The patient is now ready for an internal examination, which should be repeated as seldom as possible. It is a good practice to disinfect the hands each time the maternal parts are touched, and to keep the towel wrung from a creolin solution against the external genitals constantly. Should any accident occur to infect the field of operation, disinfect as from the first, always keeping in mind surgical cleanliness. After delivery the nurse should be instructed not to touch the mother, either to change dressing or to draw the urine, without first scrubbing the hands and nails thoroughly.

Gum catheters had better be discarded altogether, for they are never clean. Use only glass catheters; they can be easily sterilized. The field around the meatus should be carefully cleansed before the catheter is used, and everything clearly in view. After delivery of the placenta an aseptic gauze pad should be worn next the external genitals, and frequently changed.

The husband and the patient are often the sources of contagion. The husband, as a factor in the production of puerperal sepis, has not, I believe, received the consideration he deserves. He often initiates the septic process in his wife soon after marriage by inoculating her with the gonococcus, and when she is near the end of pregnancy he comes home with a soft chancre, and continues his septic and sexual relations with her. Most men touch their penis several times a day while urinating, and yet I dare say few of them ever think of washing it, no matter how dirty their occupations, before thrusting it into the parturient canal at night. Men sometimes have sexual relations with their wives within a week or two after confinement, the woman develops symptoms of puerperal fever, and the doctor is puzzled to explain the cause, and perhaps lays it to the breasts, or catching cold, or to auto-infection.

The patient does not have many opportunities for infecting herself, but the methods she employs are calculated to be very successful. Most women think any old rags are good enough to receive the lochial discharge, and this they must be prohibited from doing. She must also be discouraged from using the family sponge to bathe herself with. The surgeon would do well if he ordered all wash-rags and sponges used for such purposes burned before labor begins, for they will turn up unexpectedly a dozen times during confinement, unless they are entirely out of reach. Only recently I had prepared a parturient woman in a thoroughly aseptic manner; she found it necessary to visit the closet, and while there the waters broke and began dribbling away, when she promptly applied the bath-room sponge to the vulva, where I found it an hour later. These may seem to be little things, but if we expect to do aseptic surgery and get desirable results, we must be externally vigilant.

Vitiated air may greatly increase the predisposition or be a direct cause of

puerperal infection. Here in our northern climate houses are built with a view of keeping out the cold, and incidentally, of course, fresh air. In the winter double doors and windows are put on. The natural vitiation of the air is increased by an untrapped or defective drain connected with the sewer. The British Registrar-General's report shows that the smallest number of deaths from puerperal fever every year, for the last twenty-five years, has always been in August, when all the windows are open, and the defective drains have least chance to do harm; and the largest number of deaths has always been in January, when, the windows being closed, sewer-gas, laden with bacteria, remains for a long time undiluted in the house. Puerperal fever is relatively common in the bedrooms of the rich, where the elegant marble basin is directly connected with the city sewer. The lowest death-rate ever yet attained is in the Preston Retreat, where there is absolutely no plumbing in the building, and at the Sloane Maternity, where a steam fan-blower forces half a million cubic feet of fresh air every hour into the lying-in wards.

SMALL-POX AND TYPHOID FEVER IN MICHIGAN IN THE THIRD QUARTER OF 1895, AND THE PRESENT STATUS.

H. B. BAKER, LANSING, MICH.

At the October meeting of the Michigan State Board of Health, Secretary Baker, in his report for the third quarter of 1895, has the following statement relative to small-pox:

Four new outbreaks of small-pox were reported during the quarter. These occurred in Charleston Township, Kalamazoo County; Bedford Township, Calhoun County; Marshall City and Battle Creek Township, Calhoun County. A final report of the outbreak at Charleston Township has been received. The case at Marshall died, but no final report of this outbreak has yet reached this office at this date (October 1, 1895). Final reports have been received from the outbreaks in Olivet village and Danby Township, which began during the second quarter of 1895.

At this date (October 1, 1895), small-pox is still present at Detroit, Battle Creek, Bedford Township and Battle Creek Township.

The outbreak, which began in Detroit in May, 1894, still continues. During the quarter ending September 30, 1895, there have occurred in that city twenty new cases and two deaths, which, with the 17 cases that were still sick at the close of the year 1894, and the 108 cases and 33 deaths which occurred during the first six months of 1895, make a total of 145 cases and 35 deaths during the nine months ending September 30, 1895. During the nine months of 1895 there have occurred in the city of Detroit 128 new cases and 35 deaths; at the close of this quarter 11 cases were still sick. (From the beginning of the outbreak in May, 1894, up to October 1, 1895, there have occurred in the city of Detroit 268 cases and 69 deaths).

The outbreak which began in Battle Creek in June, 1895, still continues. During the quarter ending September 30, 1895, there have occurred in that city 14 new cases and 3 deaths, which, with the three cases which occurred during the second quarter of 1895, make a total of 17 cases and 3 deaths which have occurred in the city of Battle Creek.

In the 4 new outbreaks of small-pox which occurred during the quarter ending September 30, 1895, there have occurred 6 cases and 3 deaths.

During the 9 months ending September 30, 1895, including the 17 cases which were still sick in Detroit at the close of the year 1894 there have occurred in the State 195 cases and 45 deaths.

In 13 out of the 15 outbreaks, relative to

which final reports have been received, during the 9 months ending September 30, 1895, *the infection was restricted to the one house in which it first occurred.* The two exceptions to this rule were Highland Park, Wayne County, and the city of Battle Creek. This statement does not include the city of Detroit, as the outbreak in that city still continues, and since the outbreak began in May, 1894, at least fifty houses in that city have been infected, and probably a great many more.

This subject of small-pox in Michigan is important now, because this is the time of the year when small-pox usually begins to spread, reaching its maximum about May. For all persons not having recently had small-pox or not successfully vaccinated or revaccinated within five years, now is a good time to be vaccinated. No person need have small-pox if he will keep himself protected by successful vaccination.

TYPHOID FEVER.

The quarterly bulletin shows that "Compared with the average in the corresponding quarters in the nine years, 1886–1894, the reports from regular observers indicate that typhoid fever was much more than usually prevalent, and that typho-malarial fever, intermittent fever, pulmonary consumption, inflammation of bowels, remittent fever, whooping cough, and erysipelas were less than usually prevalent in the third quarter of 1895.

"Probably some of the increase in the reports of typhoid fever, and a corresponding decrease in the reports of typho-malarial fever, have come about because of action by the State Board of Health, October 8, 1889, in advising that in all cases of fever of doubtful origin continuing more than seven days, precautions should be taken as in typhoid fever. Dealing with such fever as typhoid for public health purposes, has apparently gradually resulted in their being called typhoid fever more generally than was formerly the custom.

Two hundred and sixty new outbreaks of typhoid fever were acted upon during the quarter. Of 69 of these outbreaks information was obtained from the local columns of newspapers. Of these 69 outbreaks 14 were confirmed by the health officer, 18 were denied, and in 37 instances no reply was received from the health officer. 125 more outbreaks were acted upon in the third quarter of 1895 than in the third quarter of 1893, and 105 more than in the corresponding quarter of 1894. Some of this increase is probably due to better reports by local health officers.

Of the 260 outbreaks acted upon during the quarter, 48 occurred in the month of July, 96 in August, and 116 in September.

"Typhoid fever is most prevalent in October, when the water in wells is lowest.

"F. D. Parmlee, of Hillsdale, in his report for September, 1895, says the water in the wells there 'is the lowest in 32 years.' At the State Capitol the observation well is dry since June, the water having gradually lowered since June, 1894. It was never known to go dry until this season.

"At this time of year, usually typhoid fever is reported under the observation of about 20 per cent. of the physicians who report to the State Board of Health. For the week ending September 21, 1895, it was reported by 32 per cent. of the observers, and for the week ending September 28, by 30 per cent. of the observers in Michigan, indicating about 50 per cent. more sickness from typhoid fever in the last two weeks in September, 1895, than in the average September. For the entire month of September, 1895, weekly card reports indicate 31 per cent. more typhoid fever than the average for September in the nine years, 1886–1894. The office of this Board has been active in efforts to decrease this disease. The public attention has been asked to the more than ordinary danger, railroad officials have been advised that typhoid fever is a dangerous communicable disease, and, as such, is included in the new law relative to the transportation of corpses, etc., and inasmuch as the health officials of the largest city, in which is about one-tenth of the people of Michigan, do not act for the notification or restriction of this important disease, a letter has been sent to the health officer of that city, placing before him some of the evidence collected by this office, and asking him

to advise his local board of health to enter vigorously on the work of restricting typhoid fever. The letter was substantially as follows:

Office of the Secretary of the Michigan State Board of Heath, Lansing, October 8, 1895.

SAMUEL P. DUFFIELD, M.D., Health Officer of the city, Detroit, Michigan.

DEAR DOCTOR: Referring again to your letter of October 4, relative to the restriction of typhoid fever, I send you by this mail a copy of our reprint No. 439, relative to Typhoid Fever in Michigan in 1892. On page 244 is a diagram showing that during the years since the restriction of typhoid fever was undertaken by the State Board of Health the mortality from that disease has been less than it was before. I enclose a diagram showing that, according to the statistics of the State Department, 1,671 lives have been saved from typhoid fever during some of those years—1879–90.

On page 248 you will see a number of instances recorded where health officers have reported typhoid fever contracted from patients sick from typhoid fever.

On page 253, in table 7, you will see that in 1892 ten outbreaks of typhoid fever in different parts of Michigan were reported by the health officers to have been due to infection brought from the city of Detroit. In those ten outbreaks three deaths occurred.

On page 263 is a diagram of the experience in Michigan in 1892, so far as reported to this office by local health officers, relative to isolation and disinfection. You will see that in those outbreaks in which isolation and disinfection were enforced, there were only about one-third as many cases and deaths as in those outbreaks in which isolation and disinfection were neglected.

I trust that you will go carefully over the subject, and see if you cannot advise your local board of health to enter vigorously upon the work of notification and restriction of typhoid fever in Detroit. This is a subject of importance, not only to the one-tenth of the people of Michigan, residing in Detroit, but also to the people throughout the State, as is shown by the ten outbreaks and three deaths from typhoid fever spread to other parts of Michigan from Detroit in the year 1892.

Very respectfully,

HENRY B. BAKER, Secretary.

P. S. On page 247 of the article on typhoid fever, you will see that in 1892 there were reported to this State Board of Health one hundred and one instances in Michigan in which typhoid fever was traced to a former case of typhoid fever. This is an indication of the need for its restriction.

Yours, H. B. B, Sec.

AM I MY BABY'S KEEPER?

How many mothers fail to realize the responsibilities of maternity! How many women of the leisure class, how many wives of common laborers even, seek to evade the nursing and care of their infants! Why should these mothers delegate the highest duty for which the female was created—the nursing and cherishing of her own young—to careless and ignorant hirelings? Why do they forsake the springs of pure and natural delight to sip the foam of a vain and discontented existence? How can any mother with a heart bear to see her baby, the fruit of her own blood, pine away and die for the lack of the nutriment which she alone is able to furnish?

The excuses given for such criminal neglect are various, but altogether absurd. This woman can not nurse her baby on account of the "demands of society," which, interpreted, means chattering gossip and idle dissipation. That mother will not give her infant suck lest her "shape be spoiled"—for the wanton gaze of ball-room debauchees. Another does not find time to attend her own child, since she is so busily engaged in making for the benighted heathen garments wherewith to clothe their nakedness, and which, along with syphilis, consumption, and spiritus frumenti, constitute the chief gifts of civilization to the inferior races. But these excuses are excuses only. The real reason of maternal dereliction lies in the very constitution of her inmost being. We have seen a sow make a hearty meal of her newborn litter. We have observed stylish ewes, as sheep go, who would desert their little helpless lambs to perish with hunger. The aforesaid sow and ewe could not avoid their cruel conduct toward their offspring. As freaks of nature it was their nature to be unnatural. Just so with the unkindly human mothers, who neglect and deprive their sweet babes; these women are not entirely to blame for their folly and heartlessness; they were born deficient in the highest attribute of womanhood—maternal love—and seek to forget and cover up their imperfection in the lesser and lower activities of life.—*Denver Medical Times.*

ALCOHOLISM, WITH SUGGESTIONS AS TO TREATMENT—STATISTICS FOR BUFFALO.*

SIDNEY A. DUNHAM, M. D., BUFFALO, N. Y.†

From the police reports we find from 1890 to 1894, inclusive, that there were 33,909 arrests for drunkenness in Buffalo. Of this number of arrests 29,895 were men, 4,014 were women, or an average for each month of 498 men and sixty-six women. During the same period of five years there were 16,213 arrests for disorderly conduct. Of this number 13,480 were men, 2,733 were women, or an average for each month of 224 men and forty-five women. Of those classed under this head, it is safe to say that the majority were drunk as well as disorderly. During the same period 490 were classed under the head of dipsomaniacs and sent to the jail to sober up. The Erie County Penitentiary reports for the five years show that 16,949 men were there for drunkenness, and 3,080 women were sent to the same place. While more than one-half of the arrests for drunkenness were sent to the penitentiary, about one-third of those arrested for disorderly conduct were also sent to the penitentiary. One man has a history of being sent to the penitentiary for drunkenness fourteen times in one year, and another thirteen times. Of those sent to the jail for dipsomania, nineteen were in twice, and nine three times.

During this period of five years, reports from the coroner's office show that seventy-nine died from alcoholism, and out of the 221 suicides, seventy-three were known to have been hard drinkers. According to French authorities the preponderate cause of suicide is alcoholism. The reports quoted show that nearly half of the suicides in the city are due, directly or indirectly, to alcoholism; and if a correct history of these cases could always be obtained, there is no doubt that the majority of suicides would be found of that class.

Comparing the small number treated at hospitals, where drink was the cause of their confinement, with those that were retained for punishment, we find that only 264 men and forty-three women were in the Buffalo General Hospital during those five years, and that 169 men and thirty-nine women were at the Buffalo State Hospital or asylum. Probably an equal number were treated at the Sisters' of Charity Hospital. However, the reports show a very small number receiving treatment for a disease which held these habituates as slaves to appetite.

Dealing with it as a crime against law and order, severe fines and heavy punishments have been applied in all ages, but a very small percentage have been benefitted of the large number of those thus treated. Treating it as a disease, the last decade has revolutionized the theories as to the cause, also care, of such maladies, and the progress has been as great in this direction as that which has marked the treatment of many other diseases. Experience teaches us that it is a disease which can be successfully treated, the time and course of treatment depending upon the stage and character of the disease. The treatment of this class of patients has varied from the heroic method of bloodletting in olden times to the empiric method of hypnotic suggestion of the present day.

Like other diseases, dipsomania, or chronic alcoholism, may be inherited or acquired. In either case the treatment is the same, although the results may be different. The more chronic the case, the more persistent should be the treatment. Habit leads to disease just as exposure leads to rheumatism. The strong-nerved man often finds appetite more than he can overcome. Therefore we should expect that the one who has inherited a nervous weakness should frequently find accustomed appetites uncontrollable.

Heredity predisposes to dipsomania

* Buffalo Academy of Medicine, 1895.

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the same as it predisposes to consumption. Both are developed under favorable surroundings. Asthma is a neurotic disease, inherited, but there is a climate for every asthmatic. Also, there is a climate for every hard drinker (temperate climate).

How they are treated at present.—Medically, the patient is confined to his room, either because he is unable to go out of his own accord, or because he is constrained by friends. The physician prescribes medicines to overcome the alarming symptoms, such as uneasiness and sleeplessness, together with a steady withdrawal of stimulants. As soon as the patient talks rationally and walks steadily, the physician discharges his patient or the patient discharges his physician. This course of treatment lasts from three days to one week, and is the sum of the entire medical attention the patient receives when he has been suffering from a chronic disease for several years. We need not be surprised that relapses occur very shortly and frequently. No other disease so grave in character, so dangerous to the community and fatal to the patient, is to-day treated so carelessly and unscientifically.

Legally, the misdemeanant is arrested, spends a night in a cell at the station-house, and is fined five to ten dollars in the morning, or an equal number of days at the workhouse. If he be well connected—socially and financially—he may be detained in the jail until his physical and mental condition is sufficiently improved to warrant the authorities in discharging him on the promise that it will be "the last time." When the patient is given an opportunity to go out into the world to do better, it is only a short time ere he finds himself again overcome by his tempter. In those cases where drunkenness is a vice this treatment is insufficient; and in those where it is a disease it is cruel and barbarous.

Why they should be differently treated.—Because a careful physical examination reveals lessened nervous energy, weakened cerebral functions, interference with coördination and reflex action, altered secretions and diminished excretions. And further, because a mental examination reveals hallucinations (painful or pleasant), delusions, melancholia, suicidal tendencies, and the like, and shows weakened will power, temporary loss of memory, the finer sensibilities numbed, perceptions and emotions dulled, truth, decency, duty, honor, and felicity doubtful or altogether lost In every case there is evidence of the paralyzing effect of alcohol upon the inhibiting power of the brain, which is one of its highest faculties; and herein the greatest damage is wrought and the will undermined.

Again, because the pathology of this disease, in advanced stages, shows degeneration of the nerve tissue, hyperemia of the meninges of the brain, diffused interstitial sclerosis of the cord, with cirrhotic changes of the internal organs.

Charpentier, out of 135 victims of general paresis, found eighty-three cases were confirmed alcoholics. He adds alcohol to syphilis and heredity, and calls them the triad of general paresis. As in severe forms of indigestion, with altered secretion and functional disturbances, when the *post-mortem* shows no pathological changes, so in severe and dangerous forms of alcoholism, with perverted faculties and impulses, the brain itself may reveal no structural changes. Sonderegger considers drunkenness the effect and not the cause of the disease; that it is an irregular development and distribution of the cells through which the will and conscience act.

There are premonitory symptoms in periodic drinkers, such as nervousness, irritable disposition, forgetfulness, deep meditation, poor appetite, and sleeplessness. Baker (*Boston Medical and Surgical Journal*) reports a case of hereditary dipsomania, in which the patient, during his craving for alcohol, though prevented from getting it, would become sleepless, lose his appetite, appear silly, incoherent, staggering in gait, with some delusions of persecutions manifested. As a patient expressed it to me the other day: "I am in another world during the drinking period."

How they should be treated.—From a criminal standpoint, the penalties should be multiplied by ten. It should be 100 days' imprisonment where it is now only ten days. This would give the patient an idea of the gravity of the

offense, and will also give Nature time in which to gain strength and fortify herself against future temptations and indulgence. While thus restrained, the patient should be kept at light work and receive medical aid for at least four weeks, according to the most advanced and successful methods of the present day.

The medical treatment, where it is now continued for about five days on the average, is about one-tenth the time required to materially benefit these cases. The indications to be met generally are largely a disturbance of the nervous system, which manifest themselves in an irritable disposition, sleeplessness, fits of depression, and, later, excitability, with all the phenomena of mania-a-potu. The digestive processes are sluggish and weak in character, the excretions are deficient and there is a general loss of muscular tone.

The excitable stages are best controlled by chloral and bromides; or, when there is much delirium with a strong pulse, hypodermic injections of hydrobromate of hyoscine 1-100th to 1-150th of a grain, to be repeated in six hours, or smaller doses every four hours. Ergotin, added in small doses to the above, will overcome the unpleasant effects of hyoscine with a good result on the cerebral congestion. Stimulants should be rapidly withdrawn, and when given should be administered in milk and other foods, but never should be given clear or "straight." If there is much nausea, it can be controlled by small doses of calomel and bismuth, frequently repeated, with nourishment, given a little at a time and often. As soon as the patient is able to take nourishment, it should be fluid in character and large in quantity, highly seasoned. If the bowels are constipated, they should be opened by injections of water and glycerine, when the patient is not able to take alkaline aperients through the stomach in the ordinary manner. An infusion of digitalis, tablespoonful doses, with ten grains of citrate of potash every four hours, will increase the urinary excretions when they are diminished. Hypodermics of the nitrate or sulphate of strychnine, with a little digitalin, are the best to overcome heart weakness and often relieves the delirium. Mulford's tablets for dipsomania for hypodermic use will be found very serviceable—namely, gold and sodium chloride, 1-24 gr.; strychnine nitrate, 1-60 gr.; nitroglycerin, 1-300 gr.; atropine sulph., 1-200 gr.; digitalin, 1-60 gr.; sodium chloride, $\frac{1}{8}$ gr.

Cold to the head overcomes delirium when due to congestion or active hyperemia of the meninges.

When the acute symptoms have subsided, a three or four weeks' course of curative treatment should begin. A tonic, consisting of nux vomica, hydrastis, capsicum and an infusion of gentian should be given four times a day and in full doses. Also hypodermics of the chloride of gold in solution—one-tenth of a grain to ten minims of distilled water—should be given three or four times a day.

Tablets of the above formula are good for the first week or ten days, followed by the gold solution. The platinum needle will not corrode by the gold solution and should be used for this reason. The infusion of gentian is used because it contains less alcohol than the tincture.

Because the chloride of gold meets so many indications in the treatment of dipsomania, there is no more reason to call it a "gold cure for dipsomania" than there is to call it a gold cure for consumption, where it has been used with a certain degree of success; or a "gold cure" for rheumatism with deformed joints, where it has been found valuable; or a "gold cure" for paralysis of the insane, where it is one of the most efficacious remedies.

The chloride of gold I consider one of the chief therapeutic agents in the treatment of chronic alcoholism. It has been used in cases of melancholia, hysteria, chorea, and especially nervous troubles due to syphilis. In its physiological action it seems to be a tonic for the brain and spinal cord—an alterative like mercury; it stimulates nutrition and digestion, increases secretions and excretions, and is an aphrodisiac. Its action in this respect is like that of strychnine and phosphorus.

The belief that the impotency for a time following the treatment is due to the chloride of gold, is a delusion on the part of the patient.

Strychnine tones up the nerve centres

and the walls of the arteries are able to contract to the normal caliber, while muscular fibres return to their healthful response.

If the alcoholic should require both punishment and medicine, as they usually do, the hypodermic method, four times a day meets the indication beautifully. If the arms swell from the effects of the hypodermics, Goulard's extract will overcome the difficulty.

In some cases, craving for drink can only be removed by treating physical ailments. Lawson Tait reports cases of cure following the removal of the uterine appendages in women. Indigestion is to be treated, neuralgia and nervous exhaustion to be remedied, irregular and weak heart action to be overcome, environment and habits to be changed, syphilis and kidney trouble to receive attention. Irregular hours at meals and for sleep, the futile attempt to drink moderately, old associations in drinking, the intention to drink only beer and cider all predispose to alcoholic excess in those already habituated to excessive drinking.

Some believe in inebriate asylums under the control of the state. Our insane asylums are just as good, and this class of patients go as willingly to the latter as to the former. The difficulty, at present, with our hospitals is their having no power to hold these patients as long as is required for successful treatment. Every city of the size of Buffalo, showing the amount of alcoholism that Buffalo does, is in need of a hospital for inebriates, endowed with power to retain patients until dismissed as cured. Our present overcrowded penitentiary would be greatly relieved of some of its very heavy burdens, the community better protected and the reformation and cure of the victim would be more pronounced and permanent. I agree with Dr. T. B. Crothers, of Hartford, that public sentiment should not permit one to become an inebriate, or tolerate him after that stage, unless under legal guardianship and restriction, until he recovers.

Our morning justices should impose larger fines for drunkenness, which means longer terms of confinement. Medical treatment should be enforced for not less than four weeks while serving time. Our habitual drinkers who do not voluntarily take treatment should be committed to the asylum until a more suitable institution can be established. The state should arrange for the proper treatment of these cases when in penal institutions. A law is required to meet this end. Every municipality should have this done.

Drunkenness, with beginners, is of so great moment, because of its demoralizing effect upon youth, that, to be a preventive, fines must be large in order to be commensurate with the offense. While there may be a question about the responsibility of acts committed while under the influence of liquor, there is no doubt about the great responsibility of such persons getting drunk as a beginner.

A portion of mankind have proven in the past that they could not drink moderately, and ought not, therefore, to have taken liquor at all, as the first drinks (socially, it may be), developed the uncontrollable desire which previous to that time had been latent and ought never to have been cultivated.

The moderate drinkers of to-day are going to furnish us with the dipsomaniacs to-morrow.

Those who have inherited a predisposition to consumption would not hazard their lives by continually nursing and associating with the consumptive. This applies to all those who have inherited irritable, nervous systems and thereby are predisposed to drink.

It is almost impossible to carry out this system of treatment in private practice. It can be more thoroughly done and the psychical effect upon the patient far more beneficial when sent to an institution. The Lexington Heights Hospital of this city has arranged particularly for these cases, and when treated according to this method the results are very satisfactory. Those who manifest a desire to take treatment and admit that they are unable themselves to discontinue the use of liquor, give the highest percentage of cures. Those who receive the least benefit remind one, when asked why they do not take treatment, of Rogers' lines:

> "Go! you may call it madness, folly,
> You shall not chase my grief away;
> There's such a joy in melancholy
> I would not, if I could, be gay."

The report of two prominent French medical authorities, Brouardel and Bouchet, to the French hygienic government committee, declare that the future belongs to abstemious nations; that it is not only a social danger everywhere, but that the body and mind of posterity are weakened. My object in presenting this paper is not to stir your emotions and entertain your higher sensibilities for the present, but to appeal to your intellectual, scientific and executive powers for the better treatment and control of these victims of habit and disease.

SUGGESTION AND CRIME.

A recent murder in England elicited, on the trial of its perpetrators, a solemn admonition addressed by the court to the purveyors of juvenile literature in which the robber and the assassin are presented in an attractive rather than deterrent light. The jury, indeed, saw a distinct nexus between the perusal of such literature and the crime of the young prisoners in the dock. Their finding has been much quoted abroad, more than one Continental journal approving of its tenor and recommending a similar admonition on the part of tribunals sitting in judgment on delinquents of tender years. In Switzerland the Societe des Medecins et Pharmaciens of Berne, at a recent sitting on the prevalence of self-murder, came unanimously to the following decision: "For twenty years the average of suicides in Switzerland has been 650, a proportion exceeded only in Saxony and Denmark. It has, besides, been matter of common observation in our great cities, at longer or shorter intervals, that a certain number of suicides succeed each other *coup sur coup*—suicides in which the first case often acts by way of suggestion, inciting individuals predisposed to commit the same desperate act. It is therefore to be desired that in future the daily press should refrain from reporting cases of suicide. This resolution will be brought under the cognizance of the Swiss Press Association." One of the leading organs of the Confederation, the *Journal de Geneve*, comments favorably on this resolution of its medical *confreres*, and, with perfect justice, we believe, claims credit to itself for having studiously and steadily excluded from its *chronique* all cases of suicide committed within the canton. The policy thus recommended and acted upon has its warrant not only from experience, but even a *priori* from the study of psychology. The mimetic principle in man, particularly in those developments in which evolution sees a distinct retrogression to a lower, more animal type, has its roots deep down in the organization, mental as well as physical, arguing a pithecoid strain which only awaits certain favoring conditions to manifest itself unmistakably in character. The epidemic of suicide, which has been so much remarked of late, has had its counterpart in the epidemics of murder or manglaughter so apt to culminate in great social upheavals like that of the French Revolution or of the Parisian Commune in 1871. Lethal violence on both occasions was "in the air," and what Zola calls the "homme-bete" became a ready imitator of "what the rest were doing," in other words, a "mission of massacre." We have small belief that such admonitions as those of British tribunals or foreign professional associations will have much practical force on contemporary crime, favored, as it notoriously is, by fanatical estimates of the worthlessness of human life almost openly avowed. But neither law nor medicine need be deterred from throwing its influence into the scale of social and mental sanity by the dread of having its "opinions" set down as merely "pious," or relegated to the limbo of the "academic."—*The Lancet.*

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PHILADELPHIA, SATURDAY, NOVEMBER 2, 1895.

EDITORIAL.

DEFORM REFORM.

The city of New York is reformed. There is no doubt of this. Proofs are patent to all, but it is sufficient to say that the newspapers confirm the report. New York is saturated with reform. So much has been imbibed that the exhilaration caused by the novel experience seems to have passed into a stage of intoxication. Everything and everybody is reformed. Reform implies change, and it has come to pass that change in any form is assumed to be reform, and is accepted without close inspection.

The recent reorganization of the city hospitals by the Commissioners of Charities and Corrections would indicate that this body has reached a stage where it no longer is able to distinguish between the initials R and D, but regard as synonyms the words *reform* and *deform*. It is presumably a matter of mere sound. The medical profession of New York City, however, evidently recognizes a distinction. Reform accomplished by wholesale decapitation smacks too strongly of the "reform" characteristic of the French Revolution. To reform by decapitation is to deform.

Recently the REPORTER had occasion to comment upon the deform reorganization of the Harlem Hospital staff. That the medical profession of New York deprecates such deform is indicated by the following preamble and resolution on the late reorganization of the Harlem Hospital staff, and the ethical questions involved, presented to the New York State Medical Association, at its late session:—

Whereas, The action of the Bellevue Hospital Medical College and the University Medical College in the late reorganization of the Harlem Hospital medical staff, whereby the members of the said staff were displaced, without charges of any description having been preferred against them, after years of faithful and gratuitous service, has seemed in wide contravention to the spirit of the Code; and

Whereas, This action is without precedent, and involves a principle which concerns the entire profession, and has imposed an injustice on members of this Association; therefore, be it

Resolved, That the Council of New York State Medical Association be instructed to institute a searching investigation into this transaction and report their conclusions thereon before this annual meeting adjourns.

That the work of deform goes merrily on, *a la* French Revolution, is shown by the following resolutions adopted by the Commissioners of Charities and Corrections, and providing for the reorganization of the city's hospitals :—

Resolved, That the College of Physicians and Surgeons, the University Medical College, the Bellevue Hospital Medical College, and the Fourth Division of Bellevue Hospital be requested each to nominate one physician and one surgeon, who shall constitute the consulting staff of Bellevue Hospital, and who shall be members of the Medical Board of Bellevue Hospital, but without service in Bellevue Hospital proper.

Resolved, That the Consulting and Medical Boards of the Gouverneur Hospital, the Fordham Hospital, the City Hospital, the Maternity Hospital, the Hospital for Nervous Diseases, the Workhouse and Almshouse and Incurable Hospitals, and the Randall's Island Hospital be and are hereby abolished, to take effect November 1, 1895.

Resolved, That the College of Physicians and Surgeons, the University Medical College, the Bellevue Hospital Medical College, and the Fourth Division of Bellevue Hospital be requested each to make the following nominations, which, when confirmed, shall take effect on November 1, 1895.

1. For the Gouverneur Hospital, one physician and one surgeon each, making a Medical Board of eight.
2. For Fordham Hospital, one physician and one surgeon each, making a Medical Board of eight.
3. For the City Hospital, two physicians, one surgeon, one genito-urinary surgeon, one gynecologist, one ophthalmologist, and one dermatologist each, making a Medical Board of twenty-eight.
4. For the Maternity Hospital, one obstetrician each, making a Medical Board of four.
5. In the Hospital for Nervous Diseases, one neurologist each, making a Medical Board of four.
6. For the Workhouse, Almshouse, and Incurable Hospitals, one physician and one surgeon each, making a Medical Board of eight.
7. For the Randall's Island Hospital, one physician, one surgeon, one ophthalmologist, and one dermatologist each, making a Medical Board of sixteen.

Resolved, That the Medical Board of Bellevue Hospital be and is hereby constituted a Consulting Board for the Gouverneur Hospital, the Harlem Hospital, the Fordham Hospital, the City Hospital, the Maternity Hospital, the Hospital for Nervous Diseases, the Workhouse, Almshouse, and Incurable Hospitals, and the Randall's Island Hospital.

Resolved, That the Medical Boards of the Gouverneur Hospital, the Harlem Hospital, the Fordham Hospital, the City Hospital, the Maternity Hospital, the Hospital for Nervous Diseases, the Workhouse, Almshouse, and Incurable Hospitals, and the Randall's Island Hospital shall be governed and conducted in strict accordance with the plan of organization of the Bellevue Hospital adopted by this Board on May 12, 1882.

The *New York Medical Record* thus expresses its opinion of the situation :—

"The Medical appointments to these institutions are entirely under the control of this Department of Charities, and the various attending staffs hold their positions at the pleasure of the appointing power. While much can truthfully be said of the political elements entering into these appointments, the latter, of late years especially, have in the main met with a general approval by the profession. The desirability of the positions, particularly those of Bellevue, in affording clinical facilities, tempted the various medical colleges to fight for what they considered their rights. By skillful wire-pulling and the ostensible exhibition of a charitable and generous rivalry in promoting the interests of medical education, the Commissioners were forced to make a deal with the colleges, and give them the lion's share of the patronage. This much was done with Bellevue, and to a certain extent with old Charity. It was then agreed, as a forced compromise, that each of the three colleges should have an equal share in three-fourths of the available positions, while the profession at large should have the remaining quarter. The colleges named their candidates when vacancies occurred in their respective divisions, and the appointments were made accordingly. The remainders, who represented the profession at large, skirmished around as best they could, and meekly dodged into the few places left.

"It appeared to be a necessity of the situation that Bellevue should be so delivered to college privileges, particularly as two of the latter institutions were in such close and convenient neighborhood to the hospital. Meanwhile the positions in the other hospitals of the department were apportioned indiscriminately to different applicants with as much fairness as could be expected under the conditions of political pull and ordinary professional fitness. At all events the appointments were generally acceptable to the profession, and fairly represented its distributive interests.

These latter gentlemen did their work well, and there was no apparent cause for any complaint on the part of the Commissioners, save that a few of the bolder spirits in different medical staffs rightfully protested against the bad food supplied to the patients, and the want of suitable appliances for the proper treatment of their diseases. Such men were either promptly dismissed or snubbed into submission by unnoticed appeals.

"Now, with an ostensible awakening to the necessities of the reforms, so long delayed and so urgently requested by the different medical attendants, it has been decided by the Commissioners to make a clean sweep along the whole line, declare all places vacant, and model the patronage of all the hospitals on the Bellevue plan. This gives the three colleges three-fourths of the patronage of appointments to all these hospitals, and the profession at large but one-fourth.

"In the matter of equitable representation of interests it is not difficult to estimate the justice of the so-called reform. If we mistake not, the voice of the profession of this city will yet be heard in no uncertain sound of earnest protest against the position taken by the Commissioners. While willing to accept the situation for Bellevue proper, there is no good reason, even on the score of better or more available clinical teaching, for expanding such a policy to the other hospitals. The Commissioners may yet learn to their sorrow that the large majority of competent medical men not connected with the colleges, have some rights for proper representation, which may yet command respect when the department itself is reorganized and new appointments in its own board are to be made.

"This entirely unnecessary, unjust and discourteous removal of medical men from positions they have so acceptably filled, involves a great deal more than the question of the outs against the ins. It is an arrogant assumption of partiality by the Commissioners that deserves a becoming rebuke. Every medical man who is not directly connected with a college consistently asks why so much favor is shown such institutions, and so little to the profession at large. Are the colleges themselves altogether innocent in the matter?"

That the opinion of the profession-at-large has been officially delivered, and the character of that opinion is clearly expressed in the following item of news, taken from the late issue of the *New York Medical Journal*:—

At a meeting of the New York County Medical Association held on Monday, the 21st inst., the following preamble and resolutions were adopted:—

Whereas, Information comes to us from reliable sources that the medical boards of the Gouverneur, Fordham, City, Maternity, Nervous Diseases, Workhouse, Almshouse, and Randall s Island Hospitals have been abolished, to take place on November 1st, and that the members composing said boards are to be removed without cause; and,

Whereas, In the case of the Harlem Hospital the committee of the New York County Medical Association, appointed to consider matters of interest to the medical profession, asked for a hearing before the Commissioners of Public Charities and Correction in the interest of the medical men who had been unjustly deposed, and urged upon the appointing boards of the medical colleges that they defer action until charges had been preferred, or that, in the absence of charges, they be reappointed; and,

Whereas, The medical colleges and the Commissioners ignored the communications, and thereby expressed their apparent contempt for your representatives and their indifference to any wrong done to the profession. Therefore, be it

Resolved, That this Association condemns the wholesale dismissal of medical men from hospital positions without cause or hearing.

Resolved, That we express our disapproval of the action of the faculties of the four divisions of Bellevue Hospital and Commissioners of Public Charities and Correction in ignoring the communications of your committee.

Resolved, That copies of the preamble and resolutions be forwarded to the faculties of the Medical Department of the University of the City of New York, the Bellevue Hospital Medical College and the College of Physicians and Surgeons, to the Commissioners of Public Charities and Correction, and to the medical press.

The sequel will be awaited with much interest, for the issue is of unusual importance to medical science.

ABSTRACTS.

TOUCH.

"Sensitive power is not in actuality, but in potentiality; it does not perceive itself."—ARISTOTLE.

"All of the senses are but modifications of touch," says Wallace, and one of the latest definitions states: "The sense of touch is the fundamental and least specialized or localized of the senses," whilst one of the most profound philosophers of the last century declared: "The sense of touch gives substance and reality to all of our sensations, and its scope of action entitles it to be called: *The Universal Sense.*"

The manifestations of the sense of touch are generally classified into: 1st, Tactile; 2d, Pressure; 3d, Muscular. Every tactile manifestation, of course, implies some form of contact, and to a certain extent *pressure*, but the sensation of the latter in its ultimate effect is altogether different from that of the mere tactile or intermittent surface-form. And then again, the tactile sensation, it is claimed, is entirely absent when the sense of touch manifests itself in the *muscular* form upon internal serous or mucous surfaces and substances. In its tactile form it is generally accepted to be the means through which mechanical force is appreciated, and this to a nicety, according to Preyer, of one two-thousandths part of a gramme upon certain portions of the surface of the face, which he holds to be even more sensitive than the points of the fingers, although these with the blind we know attain an inconceivable delicacy of sensation.

It would be very interesting to tell about the functions of the wonderfully constructed *end bulbs* of Krause, the *touch corpuscles* of Wagner and Meissner, and the *corpuscles* of Vater and Pacine, but this must be reserved for another time.

Anatomy, we know, teaches that all nerve fibres *descend from* the brain through the neck into the body. We are furthermore shown that the substances which proceed from the brain into the spinal column are two-fold, known as cortical and medullary, the cortical substance consisting of innumerable gland-like forms and the medullary substance of innumerable fibre-like forms. These, gradually bundling themselves together, constitute the nerves, which descend to the organs of sense in the face and to the organs of sense in the body; in fact, this medullary or fibrillary substance, wherever it presents itself, proceeds from the above indicated cortical or glandular substance which constitutes the surface of the *cerebrum*, and also that of the *corpora striata* from which proceeds the medulla oblongata; it also constitutes the middle of the *cerebellum* and the middle of the spinal marrow.

Now, "where fibres are in their first principles, there it is that life exercises its first or initial activity."

Realizing, then, the intricacy of the substance in which sensation of all kind has its source or first principles, we can appreciate more fully the claim of universality made for touch—that it is not simply a mechanical pressure upon the surface of the body, but can manifest itself both consciously and unconsciously also in every action of the internal organs of the body. Just as we do not see force, but experience its effects, so we do not see action or motion, but only feel or experience it in the sensories every time it operates—regardless whether the operation is voluntary or involuntary. Now the special phase of touch to which I would invite attention at present is that of invisible *muscular sensation*, and in this connection would emphasize the fact that every muscle consists of fascicles of fibres, which emanate from the very source of life and respond directly to the will power, of which it is said: "The will cannot only excite and check contractions, but is able to regulate their force and duration with wonderful precision, for by the muscular sense (the form or phase of touch we

are now more particularly treating of) the mind is able to appreciate the state of contraction of a muscle by impressions originating in the nerves supplied to its fibres. The perfection to which habit, in numerous instances, brings the sense of touch, is chiefly due to an improved capacity it confers of appreciating the impressions made on the organ in connection with niceties of muscular movement." Touch, therefore, operates as a localizing sense by means of which the mind may refer any sensation to tactile points *within* or upon the surface of the human body.

Furthermore, its close relation to hearing (the last of the senses to develop after birth, while touch is the first) will be realized when the vibratory character of sound is considered. Vibrations, whilst being appreciable by the ear, at the same time are appreciable by touch. Both senses find their unity in that class of vibrations which have sound as one of their effects, and hence the exercise of touch can be availed of as the nearest intuitive approach to hearing which exists. Its functional capacity, therefore, in all forms of vocalization, including speech, is almost coequal to that of hearing. More especially in the matter of effectuating or producing tone in the larynx and palate the muscular sensation involved in speech is of paramount importance, and in this instance this phase of touch virtually graduates the requisite force of muscular impulse supplied by the brain through the nerves.

It is owing largely, if not altogether, to this muscular sensation, which can and does operate at times independently of any so-called auditory organ, that it is possible for the deaf to appreciate elocutionary efforts, and this imparts to language, when silently read, the actualness of audibly modulated speech. By this means it is rendered possible for a musician inaudibly to experience melody and harmony before these have ever been presented to his organs of audition. In fact, it is this muscular sensation, says Ulrici, that renders "all speech and music possible."

The most delicate and decisive actions of the organs of speech, such as the closing of the glottis, the vibration of the vocal cords, the elevation of the soft palate, etc., are all invisible, and hence afford no optical presentation of their auditory function and character, and yet practice and habit render them cognizable in the art of teaching the deaf to speak, to an extent which it is wonderful to observe.

We are told to observe the infant in its first efforts to articulate sounds—how its little tongue takes every imaginable position, before innumerable efforts and repetitions cause it to become cognizant of some certain position which enables it to produce a given sound. It is asserted that the muscular sense of touch contributes quite as much to this final satisfactory result as does the sense of hearing; in fact, it is claimed that neither the sense of hearing nor sight is essential in attaining the result, because in case of the deaf and blind the same result has been achieved by intelligent and persistent practice. It is true that in the case of the deaf and blind the auxiliary form of exterior touch is availed of to a certain extent, where it can be done, in verifying the utterance of a given sound—as, for instance, in differentiating syllables such as *keys* and *geese*. The ability to modulate the voice at will in diverse instances has been achieved by persons both deaf and blind, and this, it is claimed, is solely due to success in perfecting this so-called muscular manifestation of touch.

Dr. Thomas Arnold tells us of "Antonio Provolo (1829), who constructed an instrument he called an *armonico*, made of seven pieces of steel of graduated lengths in the form of tongues, with a handle of the same material. These struck successively above a table would necessarily make, on whoever held it, an impression gradually stronger in proportion to the piece struck." Then Provolo made the deaf mute place his hand on his chest and articulate a vowel sound according to the seven notes of music, making the pupil observe the different impressions which were communicated from the chest to the hand accordingly as the vowel was pronounced higher or lower, and succeeded by degrees in making him imitate that scale, and thus by successive readings at last led him to sing. Although the singing was inferior, it enabled Provolo to modulate the voice of the deaf mute. The value of this method did not consist so

much in teaching deaf mutes to sing, as in the demonstration of the possibility of leading them to vary the voice according to the relative pitch of the vowel sounds. Whatever may be its value in relation to speech, all singers know that glottal action in singing differs essentially from that in speaking. The vocal chords in speaking are lax or taut, according to the position of the whole organ; in fact, they may be said to depend on these positions and accommodate themselves to them; but in singing the voice rules and the organs follow so that the vowel sounds are on every variety of pitch; and we are also conscious of the introduction of a peculiar muscular action of the glottis by which it is held to the positions required by the pitch. These registers are well known to vocalists, whereas in speaking they hardly find a place. It would seem, however, that an instrument constructed like Provolo's, whose vibrations could be well felt, must assist the learner in giving the right pitch to the vowel sounds.

Arnold, furthermore, illustrates the important part which muscular sense takes in teaching speech to the deaf when he cites the case of a musician: "Any one who would learn to perform on flute or piano begins by placing his fingers on the vents or keys. This is a slow process, requiring much attention to the muscular adjustment of the hands, but, once mastered, performance begins. Here habit has little power, for he still finds it difficult to shift his hands and fingers to varied positions. Thoughtful attention precedes every movement. Sight, touch and muscular force render their aid till by frequent repetitions facility grows. * * * * Whether we call it habit or reflex action, sensory activity increases by use, and muscular action takes its place at the required points till a general consent is effected and all seems self-actuated." Yet all this is not so much automatic or reflex as the gradual development of mental control over its physical agents. Let attention be withdrawn in performing the most familiar pieces and a sudden arrest follows.

Now, a deaf child learning to speak is a musician, and its organs of speech are the instrument. At first it is as difficult for the child as for the musician. The placing of the tongue, of the jaw and the lips, is all new, and requires thoughtful attention. But where the child is only deaf it has eyes to see and fingers to feel, while touch is everywhere present in finding the points of organic contact or position. The instrument is in fact part of himself, and hence possesses a vitality that never can be conveyed to wood or wire, and, therefore, the impressions of former sensations remain to facilitate repetition. The law of habit speedily shows to the child its presence, so that if half the time and toil given to learn a few tunes on a piano were given to teach him to speak, the success would astonish. Yes, the time would come when the speech would seem automatic, or very much indebted to reflex action. An equally good illustration of the scope of the service which the sense of touch renders, is that given by Dr. A. Graham Bell in speaking of the so-called glove alphabet recommended by George Dalgarno (b. 1627). This, it is true, is a method which more properly should be classed with visible tactile manifestations of touch; nevertheless, as it can be availed of by such as are bereft of both sight and hearing, it well serves to illustrate what can be achieved by a proper study and utilization of the muscular sense. The Dalgarno method consists in arranging the letters of the alphabet upon the inner or palm face of a glove.

The deaf person puts this glove, say, upon the left-hand, and then the speaker with the fingers of his right-hand touches the various letters in the order of spelling words. It will require but a brief practice before the deaf and the speaking person can dispense with the glove altogether. Dr. Bell states, in referring to his application of this method in connection with the instruction of a deaf lad he undertook to teach:

"In communicating with me it was unnecessary for him to wear the glove, as we both remembered the places of the letters. * * * * * I took his hand in mine and touched the places of the letters upon his hand. As I had five fingers, I could touch five letters simultaneously, if I so desired, and a little practice enabled me to play upon his hands as one would play upon the

keys of a piano, and quite as rapidly. I could also give emphasis by pressure upon the fingers, and group the words together as they would be grouped in utterances, leaving pauses here and there corresponding to the pauses made in actual speech. The more I used with him this communication, the more I rejoiced in the fact that I had decided to employ an alphabet addressed to the sense of touch instead of sight."

Since, however, we have graphically presented to us the *mechanical* action of the organs of speech in that indispensible achievement of phonological science, VISIBLE SPEECH, the teaching of speech to the deaf can be conducted upon well-established scientific principles in such a manner as to enable the pupil to definitely analyze the mechanism of any sound, and to impress it firmly upon his mind for reproduction, by means of symbols covering the entire range of sounds embraced in the language of any nationality whatever. The author and inventor of "Visible Speech" clearly aimed to find a *physiological* instead of a linguistic basis for the classification of the sounds used in the vocalized languages of mankind. He distinctly states:

"Visible speech is a system of symbols which exhibit all the visible and *invisible* positions of the organs in forming speech; it is a revelation and a record." He further definitely states: "Vowels are SHAPES—consonants are GRIPS of the mouth. Vowels have fixed shapes, with open apertures; consonants have transitional shapes with closing or opening *movement* of the organs. All consonant movements may be made either with or without accompanying voice." This well-defined physiological basis for a cognizable or visible presentation of the mechanical movement of the organs of speech, whether audible or inaudible, would seem clearly to establish the fact that the muscular sense or phase of touch is a conscious and most important factor brought into requisition in the act of speaking, and that by proper and persistent training of this phase of touch a gifted, although totally deaf person can attain well nigh, if not wholly, as perfect voluntary (and eventually spontaneous) control of these organs as would be the case of one whose hearing is unimpaired. And it is asserted by prominent German teachers of the deaf that so long as a pupil does not readily detect his defects in articulation—when attention is called to them—and apply the proper corrective, this sense of touch has not been properly or adequately trained; and furthermore it is largely owing to neglect of this particular point that the deaf so frequently articulate without any assured consciousness; in fact, owing to this uncertainty, frequently dislike to articulate.

Dr. Herman Gutzmann, the eminent specialist, says: "The fact is overlooked by many that the deaf mute in the perception of what is spoken is not only served by the sense of sight, but also by the muscular sense. It is muscular touch which localizes the positions and actions of his organs of articulation when he converses with others. He, therefore, in fact (consciously) also speaks to himself. * * * It is surprising that the exceptionally distinct and clear statements of Kussmaul upon this subject are so persistently ignored."

Prof. Albert Gutzmann, in speaking of the treatment for stammering, lays special stress upon the fact that muscular action should not be merely mechanical, but result from conscious mental effort; that in the treatment for stammering the central seat of the defect is assailed, and the muscular organs requisite for speech are exercised in a physiologically conscious manner. To this end a preliminary exercise of the muscles involved in producing tone is resorted to, which effect in one breath the transition from voiceless exhalation to whispering, and finally to distinctly audible vowels. The value of proceeding thus, Prof. Gutzmann says, lies in the fact that the tone-producing muscles are thus brought *successively*, instead of *simultaneously*, into action. This invisible action can then, if desired, be also verified by tactile touch of the fingers upon the exterior surface of the throat. In conclusion, Prof. Gutzmann in substance declares: "If you would exercise the muscles involved in producing speech with a view to effect an improvement of utterance, this can only be achieved by a physiologically conscious action of the muscles."

The more clearly man comes to

realize the fact that the muscular sensation of touch is really appreciable and subject to his will power, the more readily will he devise means whereby to avail himself of this important aid in giving adequate effect to his articulate utterances.

These recent efforts of educators to give to touch the "first-born" of the five senses, consideration and thought commensurate with its scope of service as a willing handmaid and frequent substitute for its colleagues, are fully sustained by some of the most eminent savants of the day, one of whom asserts in a recent publication: "The sense of touch alone can suffice for a full development of the germs which exist potentially in the human mind. This is a *datum* of great value to science."—*John Hitz, in "The New Science Review, October, 1895.*

ANARCHY IN PARIS.

Awhile ago, when the writer used to go to some anarchistic meetings to study them philosophically, it saddened and amused him to observe one small man, violent of language, with a thunderous voice—a man really incapable of killing a fly. People who had known him before his conversion to anarchy did not believe in the sincerity of his convictions. He had been drawn into the cult by the success of some of the loud-mouthed, and by the delight of his auditors in hearing him pour out a torrent of anarchistic abuse with a picturesqueness, an energy, and a carelessness quite special. It is probable that he would have had just as much success in another environment, and he had not even informed himself as to what anarchy was or was not. Such a man is an example of an anarchistic character extremely common in Paris, where a burst of applause can decide a man's life, or the success at a *fumistêrie* become the turning point of a career. This individual used to make a frightful uproar, extolled "Ravachol, the Messiah," threatened opponents with "doing their business for them," proposed sanguinary resolutions, and wore the symbolic cravats. He unburdened himself of infernal articles in the *Père Peinard*, where the order of the "Lanterne de Père Duchêsne" constituted the chief source of anarchistic epithets and the main supply of arguments. He walked abroad invariably armed with a very bludgeon of a walking-stick, which contrasted with the rest of his careful toilet. Just as soon as the law interdicted incitement to murder, our man was looked after. He took refuge in a sort of barn, a mere garret, where he laid aside the elegances of life. Dressed in a vile moth-eaten white blouse, a cap on a head of hair now close-cut, though formerly like a lion's mane, his mustache reduced to its lowest terms, he lived some time by the aid of his comrades and by the sale of his superfluous effects. But before long he found himself brought down to the most absolute poverty. His friends had been arrested in police raids, and he, who had lauded "Ravachol, the Messiah," could look for little comfort from citizens now that terror had given place to a keen sentiment of revenge. He passed whole days without eating a crust of bread. The garret even failed him. He hid himself in the nights; found here and there a few hours of hospitality; he became one of the gatherers of cigar ends in the streets, and without doubt went as far as begging. At last he caught a cold which took him to the hospital. There for a time he concealed his identity, but he was at last recognized and denounced. And from the moment in which he saw himself discovered he regained his lost audacity, began once more to celebrate "Saint Ravachol" and to heap obscenities on society. He showed much firmness before the police and the judges, was sent to New Caledonia, and ended by perishing in a mutiny by a shot from a revolver. All things taken into consideration, this man was only the victim of his vanity rather than of his belief.—*Harper's Weekly.*

LIBRARY TABLE.

TWENTIETH CENTURY PRACTICE. An International Encyclopedia of Modern Medical Science. By leading authorities of Europe and America. Edited by Thomas L. Stedman, M.D., New York City. In twenty volumes. Volume III. Occupation Diseases, Drug Habits, and Poisons. New York : William Wood & Company. 1895.

The third volume of this work treats of manifold subjects, including drug habits, occupation diseases, poisons, mountain-sickness, sea-sickness, shock, heat-stroke, frost-bite, and osteomalacia ; the whole supplemented with a copious index.

The opening chapter is by Dr. Norman Kerr, of London, on "Alcoholism and Drug Habits." Dr. Kerr treats separately of the toxic action of alcohol and other narcotics and discusses the mania for intoxication at length. His essay forms a most attractive and instructive elaboration of this most universally important subject.

The second article treats of "Shock," and is most ably dealt with by Dr. George F. Shrady, editor of the *Medical Record*.

Albert L. Gihon, of the United States Navy, contributes a most interesting monograph upon "Nanpathia," or sea-sickness, and treats of the subject in a fuller and more comprehensive manner than is found in, perhaps, any other work extant. He states that of all people who go to sea, only five per cent. are wholly exempt from its nauseating influence—and not only is mankind susceptible, but monkeys, horses, cattle, dogs, and cats also succumb, and even domestic fowl and other birds are often so affected as to be unable to swallow the food they so feebly pick. In reference to the causation of nanpathia, he believes it to be a neurosis of the sympathetic nervous system, probably induced by a disordered sense of equilibrium and of space.

As to treatment there is no universal specific, but in ordinary cases he administers kumysgen and clam juice ; while in the severer grades of the discomfort he recommends the hypodermic use of strychnia and atropia, together with hot water bottles to the feet and spine, the patient all the while lying in a swinging cot or hammock.

Prof. Councilman, of Harvard, writes a short but succinct chapter on "Osteomalacia."

Toxicology is divided between Prof. Beaumont Small, of Ottawa, and Prof. James Stewart, of Montreal.

The most lengthy article is that upon the "Diseases of Occupation," by Dr. J. Hendrie Lloyd, of Philadelphia, and one which stands out conspicuously for its thoroughness and systematic arrangement. W. H. P.

CURRENT LITERATURE REVIEWED.

IN CHARGE OF SAMUEL M. WILSON, M. D.

Early Obstruction of the Ejaculatory Ducts.[1]

John K., aged thirty-five, single, general health good, at the age of five years was operated upon for stone in the bladder by left lateral lithotomy.

He came to me, in June, 1894, for epididymitis of the left testicle. The right testis had inflamed six months before, but, as was the case with the left at the time he visited me, the pain was not sufficient to cause him to quit work.

He had an acute gonorrhœa a few years ago, which gradually declined into what the patient called "the gleet." This, of late years, bothered him only at intervals, especially after excess in venery, as a slight discharge.

The patient stated that his testicles usually pained for a day or two after sexual indulgence, though they had never before inflamed except in the instance mentioned. Sexually he was normal, except that he never had emission of semen. He was first made aware of this defect by the women with whom he consorted, and he had since observed that there was never any secretion in the urethra after coition. The external genitals were large, well developed, and with the exception of the left testis, perfectly normal. There was no trace observable of former inflammation of the right testicle.

The left epididymis was swollen, tender to the touch, and painful when allowed to depend unsupported. The pain was not sufficiently acute to keep him from work, and, after a few days in a suspensory, subsided. The infiltration becoming resorbed a little later on, the testis regained a normal condition.

After the subsidence of the epididymitis I introduced an endoscope into the urethra, for the purpose of ascertaining the condition of the parts there. I found the prostatic portion of the canal extraordinarily short, for, when I had arrived at the position where experience taught me lay the verumontanum, I found, upon withdrawing the obturator, my instrument had entered the blad-

[1] E. C. Burnett, M.D., *Journal of Cutaneous and Genito-Urinary Diseases*, September, 1895.

der. Besides, I found the verumontanum in miniature, barely discernable from the surrounding tissue.

It was not until I had begun to investigate whether or not aspermatism existed, that I found the cause of these two unusual features. Palpation *per rectum* for the seminal vesicles disclosed the fact that they were not appreciable to the touch.

With a sound in the bladder and the index finger in the rectum, I made out the prostate as perfect in shape, soft, but much smaller than that of a boy of ten or twelve years of age.

During one of these examinations I noticed a scar upon the left side of the perineum, and learned of the lithotomy operation. This explains the aspermatism. Obviously in the operation the ejaculatory ducts were torn across and became permanently occluded, and there followed arrest of development of the prostate gland and seminal vesicles.

The arrest of development of the prostate, undoubtedly the result of the occlusion of the ejaculatory ducts, leads to the inference that its principal function is a muscular one, in accelerating the ejaculatory movements at the time of the emission of the seminal fluid. From the arrangement of its anatomical elements, it seems as much like an exaggerated muscular addition to this part of the urethra as like a separate gland. Its functional relations seem to go not much further, for though this man, practically, is without a prostate, he seems to be none the worse off sexually

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A Case in Which the Hair Turned From White to Black After Exposure to Severe Cold. [2]

On January 5, 1895, we had a tremendous fire in Louisville, Ky. The night was very cold and the streets were covered with snow and ice. The gentleman I shall present is an engineer of the Louisville Fire Department, aged sixty-five years, who was on duty from 11 o'clock on the night of the fire until 2 o'clock the next day, except when taken away overcome by exhaustion, but returned to duty again. Two or three section of hose near his engine were leaking, the spray was blown on him by a strong north wind, and he was covered from head to foot with ice which became so thick that it had to be cut or broken from his clothing. He wore a skull cap and his helmet on the top of that, so that his head was the warmest part of his body, and was not exposed at all, save that his eyebrows and whiskers became wet and were frozen stiff.

I saw him the next day, when he had a feeble pulse and was much exhausted and worn out. He has not been in robust health for some time.

The afternoon next after the exposure, his hair turned perfectly black. He has been gray for eight years, and for the last three years perfectly white. Formerly he was a blonde.

I have known this gentleman for forty years. The hair is oily and does not seem to be dead at all. His head has been very carefully scrubbed several times, as I was inclined, at first, to think the change in color was caused by cinders or other foreign matter. Such did not prove to be the case.

Dr. Ewing Marshall has investigated the literature on the subject for me, and while there are several cases reported where the hair has suddenly turned from black to white, he can find no recorded case of change from white to black.

Campagne, quoted by Michelson, tells of a woman, thirty-six years of age, in whom the hair began to blanch on the twenty-third day of a severe fever, and six days later was perfectly white. On the seventh day, however, the color began to darken, and by the end of another week the hair had entirely recovered its original color.

"Van Harlingen reports an idiotic girl of thirteen, under observation in an asylum at Hamburg, who suffered from epilepsy, with alternations of agitation and calmness, each of about a week's duration. The color of the hair underwent decided changes; sometimes it was blonde, and at other times red, while the depth of these colors varied."

Falkenheim gives the case of a man of thirty-three, whose hair was curiously variegated, being, in irregular portions of the shaft, colorless and pigmented. In cases hitherto reported by Wilson and others, the ringed hairs were divided into pretty regular bands.

Three Cases of Tumor of the Brain With Autopsies. [3]

The first was a boy, aged thirteen years. For a year he had what looked like ordinary epileptic attacks, which were very much lessened by the bromides. Then he suddenly developed diplopia, with some nervous tinitis. Vision was greatly reduced, and there was at first left lateral achromatopsia, and afterward left hemianopsia. Gradually he lost entirely both sight and hearing. The reflexes, both superficial and deep, were lost. He complained of the most intense headache, and there was gradual failure of mental power. The autopsy revealed a large tumor involving the entire right temporal lobe; the occipital lobe was softened and broken down, but the cortical portion of the occipital lobe was not involved. The tumor was a sarcoma.

The second case was interesting from the fact that the tumor, a small papilloma not larger than a partridge's egg, burying itself in the right superior occipital convolution produced intense headache with double optic neuritis.

The third case showed a large sarcomatous tumor involving the temporal lobe, all except the first convolution, the greater part of the occipital lobe and the lateral lobe of the cerebellum. The symptoms were not very well marked, except headache and mental disturbance. It was interesting to note that the first temporal convolution was not involved, though the rest of the lobe was virtually destroyed, and in accordance with our accepted views concerning the auditory centre, there was deafness.

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[2] George W. Griffiths, M.D., *Journal of Cutaneous and Genito-Urinary Diseases*, September, 1895.

[3] George J. Preston, M.D., *Journal of Nervous and Mental Diseases*, September, 1895.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

Treatment and Aborting of Boils.

The *Clinical Journal* has this on the subject: It is desirable to have other resources than the knife and the antiseptic lotion in the treatment of boils, inasmuch as the mere mention of the lancet is painfully distressing to some over-sensitive natures. Van Hoorn employs a method which fulfills the three-fold condition of being antiseptic, comparatively painless, and said to be very effectual. He first makes the patient's body aseptic by washing the whole of it quite clean with tepid water and potash soap. He then proceeds to a still more perfect purification of the boil and the surrounding inflamed parts by having thoroughly washed with corrosive sublimate solution of the strength of 1 in 1000. Here perhaps we may interrupt our description by the suggestion that a solution of the biniodide of mercury, which, according to Bolsheolsky, Luff, Illingworth, and others, is a safer and more powerful germicide than the perchloride, might be employed instead. Having made the outer parts thoroughly aseptic Van Hoorn completely covers the furuncle and its immediately surrounding area with a phenol and mercurial plaster. This he changes daily. Of course it may be changed oftener if necessary. If the furuncle have reached the definitely purulent stage it bursts. The contents are then thoroughly squeezed out and the cavity cleansed with the sublimate solution. It sometimes happens, however, that treatment is commenced before fluctuation has declared itself, and in that case absorption and abortion may be looked for. It is said that the results obtained are excellent. The inflamed parts quickly return to the normal state, cicatrization is rapid, and the cure is both pleasant and prompt. It would be well that this method of treatment should be extensively tried.

Harmfulness of Cough Mixtures.

Speaking of cough mixtures the editor of the *Charlotte Medical Journal* has this to say: The great harm these products produce is almost unlimited, and should be regarded as a relic of ancient and unscientific methods of practice. Cough mixtures, as a general rule, do more harm than good, and their reckless and indiscriminate use should be carefully considered by physicians. A patient comes to you with a cough. The first thing you do is to give him a cough mixture, and nine times out of ten the principal ingredient is opium. 'Tis true opium may lessen the tendency to cough, but it does a great damage by arresting the normal secretions, and the system becomes affected by the poisons from the kidneys, the skin, stomach, intestines, the pulmonary structures and the mucous membrane lining the upper air passages. You might as well take a brush and varnish your patient all over as to fill him with cough mixtures. Death is almost as certain from one as from the other, and yet they recover often in spite of the cough mixture. Not only do these damnable mixtures arrest every secretion in the body, but they also show their deteriorating and degrading effect through the stomach. They contain nauseants which tend to disorder and derange digestion. Do not give your patients cough mixtures.

Carbolic Acid Internally for Gonorrhea.

Balm (*Indian Med. Rec.*) gives 3 to 5 minims of carbolic acid in solution, three times a day, for gonorrhea and with satisfactory results. He gives as reason for this treatment, that gonorrhea is a specific disease dependent on a specific bacillus. Carbolic acid is an antiseptic and germicide. Given internally, it is mainly eliminated from the system by the urinine, and it therefore acts directly on the bacilli. It also increases the flow of urine and allays the burning pain during micturition. At the same time he uses a mild, astringent urethral injection, such as 2 grains of sulphate of zinc to the ounce of water.

GYNECOLOGY.

Treatment of Sexual Torpor in the Female.

Lutaud states (*Mal. des Femmes*) that the physician is often consulted because of lack of sexual appetite in woman, and that after inquiry as to the general health, his attention should be given to the sexual functions in order to discover any abnormality or functional disorder.

A useful recipe in some cases is

Extract of nux vomica,
Extract of cannabis indica, of each, 15 grains.
Aqueous extract of aloes, 3 grains.
M. ft. in pil. no. 50.
One after each meal.

In other instances phosphorous is better.

Phosphorous, ½ grain;
Bisulphide of carbon, 20 drops;
Oil of almonds, 5 drachms;
Magnesia, q. s.
M. ft. in pil. no. 50.

These pills should be gelatin coated, and one may be taken after each meal.

Musk, vanilla, and santal all have the reputation of being aphrodisiacs, and small doses of cantharides are often useful.

Powdered vanilla,
Powdered canella, of each, 45 grains;
Powdered mace, 15 grains;
Powdered black pepper,
Powdered nux vomica, of each, 5 grains;
Powdered carbonate of iron, 4 grains.
M. ft. in cachet no. 10.
One after meals.

Sometimes minute doses of opium taken at night before retiring may prove useful; in other cases cocaine is of value, but the fear of contracting the habit of using these drugs is to be recollected.—*Therapeutic Gaz.*, October 15, 1895.

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ORIGINAL ARTICLES.

THE TREATMENT OF DIPHTHERIA WITH DIPHTHERIA ANTITOXIN.*

EDWIN ROSENTHAL, M. D., PHILADELPHIA.

[CONCLUDED.]

The following was the list of questions sent by me to different physicians who had used the antitoxin:

1. Number of cases?
2. Age?
3. Sex?
4. Result?
5. Was a bacteriologic examination made?
6. The day of disease when injection was made? And quantity?
7. If the case had a fatal termination? How long after injection?
8. Cause of death?
9. Variety of diphtheria:
   Laryngeal { Intubate? / Tracheotomized? } Before or after inject'n?
10. If death intubate?
    Tracheotomized?
11. Fauces and larynx?
12. Fauces, nasal, and laryngeal?
13. Nasal?
14. Palatal and faucial?
15. Buccal and faucial?
16. How long after injection did membrane disappear?
17. How long after injection was throat free of membrane?
18. How long after injection was throat free of bacteria?
19. When did you notice a decline in pulse, respiration, and temperature?
20. Did you notice any skin eruption?
21. Did you notice any joint pains?
22. Did you notice any adenitis?
23. Did you notice any otorrhœa?
24. Did you notice any renal complications?
    Albuminuria? / Anuria? / Nephritis? } Before or after injection?
25. Did you notice any pneumonia?
26. Did you notice any sequelæ? Paralysis, etc?
27. Did the diphtheria come after scarlatina or measles?
28. Did you practice immunization?
    Adults?
    Children?
29. How much serum at an injection?
    Adults?
    Children?
30. Was bacteriologic examination made of those immunized?
31. Was any one attacked with diphtheria after immunization? How long after injection?

The questions I most desired answered were those upon which the antagonists of the serum-therapy laid most stress. They were: skin eruption, joint pains and swelling, renal complications, sequelæ, and whether immunization protects. The question of

diphtheria coming as a complication or an addition, or following scarlatina or measles was particularly interesting to me, as in my opinion these cases are the most serious, if not the most fatal. As for myself, diphtheria of the larynx (membranous croup) following measles was always in my experience fatal, whether intubated or not, under other methods of treatment. These cases, like the statistics, speak for themselves. I simply copied the reports made to me, curtailing them as much as possible so as to prevent this paper reaching too great a length.

Report of Dr. W. E. Johnson, Waverly, N. Y. Number of cases, 4; 3 females, 1 male. Ages were six, eight, ten, fifty-six years. Result, recovery. No bacteriologic examinations were made; 1 case fauces and larynx; 1 case fauces, nasal and larynx; 2 cases palatal and faucial.

Intubation or tracheotomy unnecessary. The quantity of antitoxin used was 60 c.cm. (6000 immunity units) to case fifty-six years old, with disappearance of membrane on fifth day; 20 c.cm. (2000 immunity units) in each of the other cases, with disappearance of membranes on third day. One case (fifty-six years) showed joint pains, and was followed by paralysis; one case showed albumin after injection. McFarland's (H. K. Mulford Co.) antitoxin used.

Report of Dr. C. P. Adams, Trenton, N. J. Number of cases, 2; females. Ages five, thirty years. Result, recovery. No bacteriologic examination. One death in the family (female, aged three years) one day previous to the doctor's care of these cases; 1 case fauces and larynx, aged five years; 1 case palatal and faucial, aged thirty years.

The quantity of antitoxin used was 20 c.cm. (2000 immunity units) in each case. Membranes disappeared on third day. Pulse and fever declined in twenty-four to thirty-six hours. Adenitis in both cases. Antitoxin used, Behring's and Gibier's. Injections made on the second day.

Report of Dr. I. R. Schoonmaker, Sayre, Pa. Number of cases, 2; 1 male, 1 female. Ages ten, fifty years. Result, recovery; 1 case faucial, buccal, and palatal, ten years; 1 case faucial and laryngeal, fifty years.

No bacteriologic examination. Injection, in adult, on second day, 20 c.cm. (2000) twice injected (4000 immunity units); two injections 10 c.cm. each (2000 immunity units), in child. A death previously (aged thirty-one years), two days before doctor treated the above cases. The membranes disappeared in child on third day; in adult on the fifth day. Pulse and temperature declined in twenty-four hours. Eruption in child erythematous in character. No sequelæ or complications in either case. McFarland's antitoxin used.

Report of Dr. J. N. Richards, Fallsington, Pa. Number of cases 1; female, aged three years. Result, recovery.

No bacteriologic examination. Injections were made on the third and fifth days, 10 c.cm. each (2000 immunity units). The membranes began to disappear in from twenty-four to forty-eight hours, and were gone on the third day. The pulse, respiration, and temperature declined in six hours after the second injection. No complications or sequelæ. McFarland's (Mulford's) antitoxin used. The case was one of palatal and faucial variety.

Report of Dr. W. S. Long, Haddonfield, N. J. Number of cases, 3; females. Ages, six weeks three days, three and a half years, thirty years. Result, recovery. No bacteriologic examination; 1 case fauces and larynx; 1 case faucial, nasal, and laryngeal; 1 case palatal and faucial.

Injections were made in one case on the third day, another on the fourth day, and another on the second day of the disease. The membranes disappeared on fourteenth day in first, seventh day in second, and in two days in third. Urticaria was noticed in first case. Some paralysis was noted in first two cases. Immunization was practised on third case; 5 c.cm. (500 immunity units) injected; third week after, visual traces of the disease were manifested; 15 c.cm. (1500 immunity units) was then administered. The other received first 10 c.cm. (1000 immunity units), then 15 c.cm. (1500 immunity units).

Report of Dr. A. F. Hyde, Shelby, O. Number of cases, 7; 5 males, 2 females. Result, recovery in 6; 1 death. Bacteriologic examination made in one case.

No.	Age.	Variety.	Quantity and day of injection.	
1	4½ years	larynx and faucial	5 c.cm. (750 units) 3d day	Behring's No. 3.
2	33 years	larynx, palatal, and faucial	5 c.cm. " 5th "	"
3	14 years	larynx and faucial	8 c.cm. (1200 units) 8th "	"
4	13 years	larynx and faucial	5 c.cm. (500 units) 5th "	McFarland's.
5	5 years	faucial	5 c.cm. (500 units) 6th "	"
6	1 year	faucial	2 c.cm. (300 units) 1st "	"
7	3 years	faucial and laryngeal	3 c.cm. (450 units) 2d "	Behring's No. 3.

The membranes three days after injection were entirely gone, and began to disappear in twenty-four to forty-eight hours. All these cases suffered from adenitis. In one case (No. 2) pneumonia was a complication. As a sequelæ, 3 cases suffered from paralysis (2 aphonia). Immunization was practised once, 2 c.cm. (300 units), Behring's No. 3 being used, and was successful. The fatal case (No. 5) was septic and moribund, dying seven hours after injection.*

Report of Dr. S. I. Bassford, Biddeford, Me. Number of cases, 3; 1 male, 2 females. Result, 1 recovery, 2 deaths. No bacteriologic examination made; 1, aged fourteen months, fauces, nasal and larynx; Gibier's; second day, death; 2, aged eight years, fauces and larynx; Behring's; second day, death; 3, aged five years, fauces, nasal and larynx; Behring's; sixth day, death. Case No. 1 died of pneumonia (catarrhal) twenty-seven days after injection. Case No. 3 died in twenty-four hours, of sepis. Case No. 1 came as a sequel to scarlet fever. Membranes disappeared in successful case in forty-eight hours.

Report of Dr. Wm. McD. Struble, Trenton, N. J. Number of cases, 11; 8 males, 3 females. One death.

No.	Age.	Variety.	Quantity and day of injection.	
1	15 months	faucial	5 c.cm. 1st, 5 c.cm. 2d (1000 units)	Behring's No. 2.
2	11 months	faucial	10 c.cm. (1000 units) 1st day	"
3	11 years	faucial and nasal	10 c.cm. " 1st "	"
4	4 years	faucial	10 c.cm. " 1st "	"
5	23 months	faucial and larynx	10 c.cm. " 5th "	"
6	4½ years	faucial	10 c.cm. " 1st "	"
7	5 years	faucial and nasal	10 c.cm. " 1st "	"
8	3 years	faucial and nasal	10 c.cm. " 2d "	"
9	2 years	faucial	10 c.cm. " 1st "	"
10	12 years	faucial	10 c.cm. " 1st "	"
11	2 years	faucial	10 c.cm. " 2d "	"

Case No. 5 died from asphyxia. No bacteriologic examination was made. The membranes disappeared in 6 on third day, in 2 on fourth day, in 2 on fifth day, in 1 on sixth day after injection. Decline in pulse and temperature was noticed in six hours in 2 cases, eight hours in 3 cases, twelve hours in 2 cases, twenty-four hours in 2 cases, and forty-eight hours in 1 case. A slight erythema was noticed in half the cases. All had enlarged glands, but no suppuration. In 2 cases albumin was found. In case No. 1 (first case treated) temperature fell in six hours, but again rose and continued until throat was free of membrane. As an addition, Dr. Struble sent me an explanation of the method used by him to clinically establish the value of antitoxin. He first used antitoxin on 5 cases with one death (Case No. 5), which could not have recovered under any method of treatment. He then treated a second series of 5 cases (these cases coming to him in regular order); of these, 2 died. They were treated without antitoxin, and were of the same character as the first series. He then treated a third series of 5 cases with antitoxin, and all recovered. Two cases of a fourth series, starting the same plan of experimentation, were so serious and so prolonged that he rejected the old plan of treatment and used the antitoxin treatment, although these two recovered.

Report of Dr. G. Metzler, Philadelphia, Pa. Number of cases, 1. Other cases seen and treated by Dr. Metzler appear in report of my cases. Female, aged six years. Recovery. No bacteriologic examination made. Case was one of faucial diphtheria. Injected, on the third day, with 5 c.cm. (500 immunity units) McFarland's antitoxin. The temperature and pulse began to decline within twenty-four hours. The membranes softened within twenty-four hours, and disappeared in three days. Dr. Metzler practised immunization in 11 cases, using 1.5 c.m. (150 immunity units) in each case. No diphtheria appeared in any.

Report of Drs. Eugene F. and Louis

* Three of these cases were reported in the Columbus Medical Journal, April 30, 1895, No. 9, vol. xiv.

Hauck, St. Louis, Mo. Number of cases, 18; 9 males, 9 females; 2 deaths. Bacteriologic examinations made in each case. Ages were from sixteen months to forty-four years. Injections were made, 6 on second, 6 on third, 4 on fourth, and 2 on sixth day of disease; 5 cases fauces and larynx, 1 death; 1 case fauces, nasal, and larynx, 1 death; 12 cases palatal and faucial. Of the 6 laryngeal cases 5 were intubated, with 2 deaths after intubation. The membranes disappeared, 6 in two days, 6 in four days, and 4 in five days. The throat was free from bacteria only after three weeks. Temperature and pulse declined after twelve hours in the majority of cases, some as early as three hours. Joint pains were noticed once. Paralysis came as a sequel three times. Diphtheria came as a sequel to scarlatina once, with recovery. Immunization was practised on two adults and two children. No diphtheria followed in those immunized. Bacteriologic examination was not made on those immunized. Behring's, Gibier's, and McFarland's antitoxin was used.

Report of Dr. S. J. Ottinger, Philadelphia, Pa. Number of cases, 1; male, aged four years and ten months. Result, death. Bacteriologic examination was made. The case was one of laryngeal, faucial, and nasal variety, and was septic. Injected, on seventh day, with 10 c.cm. (1000 immunity units) Mulford's antitoxin. Repeated in six hours with 10 c.cm (1000 units) more. The child died fifteen hours after first injection. There was a decline in pulse, respiration and temperature four hours after second injection. The cause of death, paralysis of the heart.

Report of Dr. G. E. Roos, Scranton, Pa. Number of cases, 25; both male and female. One death. Ages were between six months and ten years. No bacteriologic examination was made. The injections were all made between the first and fourth days, and from 1000 to 2000 units used. In the case that died, death came two days after injection from suffocation from membrane below the tube, a case which the doctor writes should have been tracheotomized; 14 cases palatal and faucial; 9 cases faucial and larynx; 2 cases nasal and faucial.

Of the laryngeal cases 5 were intubated, with one death. The membranes began to disappear in twenty-four to forty-eight hours, and the throat was free in two to eight days. Pulse, temperature, and respiration declined twenty-four hours after injection. One case had pneumonia before injection.

Report of Dr. Alexander Klein, Philadelphia, Pa. Number of cases, 2; females. Ages two and seven years. Result, recovery. Both were palatal and faucial, and were injected, on the second day for the seven-year child and on the fourth day for the two-year child, with 10 c.cm. (1000 units) Behring's No. 2. The seven-year child's throat cleared on fourth day; the two-year child's on the third day. Bacteriologic examination was made of both cases, and the throat was pronounced clear of bacteria (KL) in one month for the seven-year and five weeks for the two-year child. Temperature and pulse declined in twenty-four hours; 1 case showed an eruption, and 1 case showed joint pains. Immunization was practised in 11 cases; 4 adults, 7 children. The adults received 300 units, the children received 200 units, and remained well.

Report of Dr. Samuel P. Gerhard, Philadelphia, Pa. Number of cases, 5; 4 females, 1 male. Ages three, four, four, five and six years. Result, recovery.

Bacteriological examinations were made at the laboratory of the Philadelphia Board of Health, and were pronounced true diphtheria. Injections, 7 c.cm. (1400 units), were made twice on third day; once, 10 c.cm. (1000 units), on first day; once, 10 c.cm. (1000 units), on second day; once, 10 c.cm. (1000 units), on fifth day of the disease; 2 cases were fauces and larynx; 1 case was faucial, nasal, and laryngeal; 2 cases were palatal and faucial. The membranes began to disappear in 1 case in forty-eight hours, in 3 cases in three days, and in 1 case in four days. The throat was free from membranes on the fifth day in all cases, and was free of (KL) bacilli in eight days in 3, and in ten days in 2 cases. The temperature and pulse began to decline in six hours after injection. Skin eruption was noted in 1 case after injection; in a second case before the injection. Adenitis was noted in 3 cases before the injection; in 1 case anuria with œdema after injec-

tion. Doctor, however, thinks that the cause of this was exposure to cold and damp; the child was permitted to play in water on a cold day. Two cases had paralysis as a sequel. Immunization was practised in one case, on which a bacteriologic examination was made, no bacilli being found. McFarland's (Mulford's) antitoxin was used.

Report of Dr. H. H. Freund, Philadelphia, Pa. Number of cases, 4; 3 males, 1 female. 1 death.

No.	Age.	Variety.	Quantity and day of injection.
1.	18 months	faucial, nasal and laryngeal	10 c.cm. Behring's No. 2 (1000) 3d day.
2.	1 year	laryngeal	10 c.cm. Behring's No. 1 (600) 1st "
3.	2 years	faucial and larynx	10 c.cm. Behring's No. 2 (1000) 3d "
4.	4 years	faucial and laryngeal	10 c.cm. Behring's No. 2 (1000) 4th "

Of these cases 2 were intubated, with 1 death, forty-eight hours after injection. The cause of death being given as œdema of the lungs. In the favorable cases the membranes began disappearing on the third day, and were gone on the fifth day. A decline in pulse, temperature, and respiration was noted in forty-eight hours. One case, which ended favorably, had pneumonia. (Cases reported in *The Medical News.*)

Report of Dr. Chas. D. Spivak, Philadelphia, Pa. Number of cases, 4; 2 females, 2 males. Result, recovery.

No.	Age.	Variety.	Quantity and day of injection.
1	1 year 4 months	palatal and faucial	3d day of disease 1000 units.
2	2 years	fauces nasal and laryngeal	2d " " " "
3	8 years	faucial and palatal	4th " " " "
4	30 years	faucial and palatal	1st " " " "

No bacteriologic examination made. Laryngeal case intubated several hours before injection. The membrane began to disappear on the second day in cases 1, 3 and 4. In case No. 2 five days elapsed before membrane disappeared from the fauces, and sixteen days before the tube could be withdrawn and left out. The temperature, pulse, and respiration declined in six to eight hours. Case No. 1 had adenitis. This case came as a sequel to measles.

Report of Dr. J. J. Owen, Philadelphia, Pa. Number of cases, 2; 1 male, 1 female; ages two years. 1 death. Case No. 1, laryngeal, 10 c.cm. Behring's No. 2. Intubated. Death in forty-eight hours. Case No. 2 palatal and faucial, 17 c.cm. (1700 units) Behring's No. 2. Injected on fourth day.

The case that recovered required two injections. Temperature and pulse declined four hours after each injection from 103° to 99°. The laryngeal case was injected on the first day.

Report of Dr. George A. Muehleck, Philadelphia, Pa. Number of cases, 26. 3 deaths.

I am somewhat familiar with Dr. Muehleck's work, he being the first to have used antitoxin in Philadelphia, Pa. Dr. Muehleck makes his own bacteriologic examinations in most all the cases treated by the antitoxin, and also in those immunized. He has immunized 40 cases, all children, in half of which the Loeffler bacillus was found, and not a single case showed any visual signs of the disease. In his practice he used Gibier's antitoxin in 5 cases, Behring's antitoxin in 4 cases, and Aronson's in 17 cases. The erythematous rash followed in all cases upon which Gibier's antitoxin was used. Of Behring's he used 5 c.cm. of No. 3, equivalent to 750 units. The same quantity of Aronson's was used. (See table next page.)

In the cases that died the injections were all made a few hours before death. The membranes began to disappear in the faucial and palatal cases in twenty-four to thirty-six hours; in the laryngeal forty-eight to seventy-two hours. The throat cleared from five to six days in in the faucial, and from seven to ten days in the laryngeal. The throat cleared of bacteria in four to five weeks.

The temperature, pulse, and respiration declined within four to six hours. Albumin was found in 12 cases, the most severe ones, before injection, which did not appear to have any influence on the symptom. Paralytic (faucial) symptoms came as a sequel in about twelve cases, but disappeared very soon. Three cases were a sequel to measles, 1 of these died. In the cases immunized Dr. Muehleck used Aronson's, McFarland's, and Solis-Cohen's. He gave from 100 to 300 immunity units. In no single case was there any outbreak. (4 cases reported in *The Medical News.* Dr.

No.	Age	Sex.	Variety.	Injection.	When Injected.
1	4 years	Male	laryngeal	Aronson's	2d day.
2	3 years	Male	palatal and faucial	Gibier's	2d "
3	6 months	Male	palatal and faucial	Gibier's	2d "
4	2 years	Female	palatal and faucial	Gibier's	2d "
5	5 years	Female	palatal and faucial, nasal and laryngeal	Aronson's	6th "
6	7 years	Male	palatal and faucial	Gibier's	1st "
7	4 years	Male	buccal and faucial	Gibier's	1st "
8	9 years	Male	palatal and faucial	Aronson's	2d "
9	9 months	Male	nasal and faucial	Aronson's	2d "
10	6 years	Male	faucial and palatal	Aronson's	2d "
11	1 year 9 months	Female	fauces and larynx	Behring's	3d "
12	3 years	Male	faucial and palatal	Behring's	1st "
13	9 months	Male	faucial and palatal	Aronson's	2d "
14	5 months	Female	laryngeal	Aronson's	2d "
15	6 months		faucial and palatal	Aronson's	2d "
16	12 years	Male	fauces and larynx	Aronson's	2d "
17	4 years	Female	laryngeal, nasal, and faucial	Behring's	3d "
18	3 years	Male	laryngeal	Behring's	3d "
19	7 years	Female	laryngeal	Aronson's	3d "
20	5 years	Male	palatal and faucial	Aronson's	4th "
21	3 years	Female	palatal and faucial	Aronson's	3d "
22	1 year 2 months	Male	palatal and faucial	Aronson's	2d "
23	4 years	Male	palatal and faucial	Aronson's	2d "
24	2 years	Female	laryngeal	Aronson's	6th "
25	2 years	Female	laryngeal	Aronson's	2d "
26	2 years	Female	laryngeal	Aronson's	2d "

Muehleck presenting a paper before the College of Physicians.)

Report of Dr. Edwin Rosenthal's Cases. Number of cases, 78; 2 deaths.

The 2 deaths are reported with Drs. Owen's and Freund's cases; and were entered by me in my list because they were intubated by me. Most of my cases had a bacteriologic examination made by Dr. A. Klein, Drs. B. Meade Bolton, Gillespie or Pease, in the Bacteriological Laboratory of the Bureau of Health, and by Dr. George A. Muehleck, in his private laboratory. I also had the case immunized examined with the result that over 50 per cent. showed the Klebs-Loeffler bacilli. In several cases, where I had given curative doses of the serum, no specific bacilli were found on bacteriologic examination; the patient showed no bad symptoms on receiving this dose. I have used Aronson's, Roux's, Gibier's, Behring's, McFarland's, and Solis-Cohen's antitoxin. In those immunized not one showed visual traces of the disease, even when constantly brought in contact with those affected. McFarland's antitoxin showed equal value with Behring's No. 2, of which I was not familiar, and in administration I used the same quantity, c.cm. for c.cm.

The cases treated were 31 males, 47 females, all white. Their ages were: 8 between one and two years old, of which 5 were intubated, with 1 death; 10 between two and three years old, of which 5 were intubated, with 1 death; 5 between three and four years old, of which 1 was intubated; 15 were between four and five years old, of which 2 were intubated; 3 were between five and six years old, of which 1 was intubated; 4 were between six and seven years old, of which one was intubated; 2 were between seven and eight; 3 between eight and nine; 2 between nine and ten; 2 between ten and eleven; 1 between eleven and twelve; 2 between twelve and thirteen; 1 between thirteen and fourteen; 1 between fourteen and fifteen; 2 between fifteen and sixteen; 1 between seventeen and eighteen; 1 each for twenty-two, twenty-three, twenty-four, twenty-six and twenty-eight years; 5 between thirty and thirty-one; 4 between thirty-two and thirty-three years; and one each between thirty-six and thirty-seven, and forty and forty-one years of age.

There were 11 laryngeal, 4 intubated, 1 death; 12 faucial and laryngeal, 8 intubated, 1 death; 3 faucial, nasal, and laryngeal, 3 intubated; 1 faucial and nasal; 3 faucial and palatal; 48 faucial. Of these cases the most received 10 c.cm. (1000 immunity units) when Behring's or McFarland's antitoxin was used—at a dose; repeated in twelve to twenty-four hours, if necessary; if other antitoxin was used, an equivalent was administered, though some received as low as 600 units as a curative dose. In some cases Aronson's, McFarland's or Solis-Cohen's antitoxin was used as the first dose and Behring's antitoxin as the second dose. I noticed no joint pains, and a skin rash was noted in 10 cases only. Albumin was detected in only 8 cases and had nothing to do with the serum. I invariably examine the urine, as I had been taught since 1885 that al-

bumin was a complication of diphtheria and those cases so affected were serious, if not fatal. I practiced immunization on everyone willing to receive it. Dr. J. Solis-Cohen, as well as Mr. Campbell, of the H. K. Mulford Company, kindly furnished the antitoxin for my poor cases. Over 200, probably one-third adults, received an immunizing dose, about 100 to 200 (if the Loeffler bacillus was found) at a dose. In extraordinary cases, like a pregnant woman in the last days of pregnancy, they received 400 to 600 units; of this description, a case was immunized by Dr. A. Klein with success.* I also immunized phthisical as well as otherwise affected individuals, and have yet to see one case show visual signs, although one-half the cases showed by bacteriological tests the bacilli; 1 case had ozœna as a sequel. Aphonia in several cases of laryngeal was a sequel.

Injections were made on the first day of the disease in 18 cases, on the second day in 30 cases, on the third day in 22 cases, on the fourth day in 4 cases, on the fifth day in 1 case, on the sixth day in 2 cases, and on the seventh day in 1 case. In the faucial cases the membranes began to disappear on the second day, and were entirely gone by the fifth day. In the laryngeal cases stenosis was relieved on the third day; in those cases intubated the tube was allowed to remain until the fourth day; 1 case necessitated its use for sixteen days. Bacteriologic examinations showed the bacilli one month after injection. Anæmia or other sequelæ were never noticed; in the laryngeal cases the same pallor and emaciation were seen, but in two or three days were entirely gone.

Report of Dr. L. Wolff, of Philadelphia, Pa. Number of cases, 5; 3 females, 2 males. Ages, two to six years. Result, recovery.

Bacteriologic examinations were made in every case in the Laboratory of the German Hospital. Injections were made on the second day in 4 cases, and on third day in 1 case. The quantity used was 10 c.cm. (1000 units) Behring's No. 2. Immunization was practiced once on a child, and 2 c.cm. (200 units) were injected, with success; 2 cases were laryngeal and fauces, both intubated, one before and one after injection; 3 cases were palatal and faucial.

The membranes began to disappear in from twenty-four to seventy-two hours, and the throat was clear in three to four days. It was not ascertained how long after the throat was clear of bacilli. No skin eruptions or joint pains were noted, but adenitis was a symptom. Albuminuria was noted twice, before and after injection; 1 case was followed by paralysis (1 case published in *Med. News*).

Report of Dr. John Sebastian Miller, Philadelphia, Pa. Number of cases, 18; males and females equal. Ages, one to ten years. Result, recovery. Used Gibier's, Behring's, and McFarland's.

Immunized 8 cases; no infection, all cases being successful; 7 cases were laryngeal and faucial; 2 were nasal and faucial; 8 were faucial, buccal, and palatal; 6 were faucial.

The membranes began to disappear thirty-six hours after injection, and were entirely gone in three to four days. Bacteriologic examinations were made in 12 cases. The injections were made equally on the first, second, and third days. Stenosis was relieved in the laryngeal cases on the third day; 4 cases had adenitis; albumin was found in but 1 case, and had no significance; as a sequel in 5 laryngeal cases aphonia lasting one week occurred. As an addition to his report, Dr. Miller observes: "I have not lost a single case since the antitoxin period, and most of my cases were very seriously ill; a death now to me would be an exception. Previous to the antitoxin period I looked upon diphtheria with a great deal of fear, and deaths were a common occurrence." Despite intubation, tracheotomy, etc., his percentage of deaths was always large. Whilst his cases were always serious, he can find no difference in the gravity of his present cases, except that they recover.

A summary of these reports shows the following: Cases reported, 222, almost equally divided as regards sex; adults, 44; children, 178. There were 13 deaths, which shows a mortality of $5\frac{18}{18}$ per cent.

There were faucial, 63, no deaths; laryngeal, 20, 2 deaths; fauces and larynx, 50, 3 deaths; faucial, nasal, and laryngeal, 14, 7 deaths; faucial and

*Codex Medicus, Philadelphia, September, 1895.

nasal, 6, no deaths; buccal, faucial, and palatal, 13, 1 death; faucial and palatal, 56, no deaths. Of the 84 laryngeal cases 12 died; 31 were intubated, with 5 deaths.

The deaths were as follows:

1	Died	7 hours	after injection			on 7th	day
2	"	27 days	"	"	(from pneumonia)	" 2d	"
3	"	24 hours	"	"	.....	" 7th	"
4	"	10 "	"	"	(faucial, nasal, and laryngeal)	" 5th	"
5	"	15 "	"	"	(sepsis)	" 7th	"
6	"	7 "	"	"	"	" 6th	"
7	"	4 "	"	"	"	" 6th	"
8	"	5 "	"	"	"	" 4th	"
9	"	24 "	"	"	(intubated).....	" 4th	"
10	"	2 days	"	"	"	" 4th	"
11	"	18 hours	"	"	" (spread of membrane)	" 2d	"
12	"	2 days	"	"	(intubated)...	" 2d	"
13	"	31 hours	"	"	"	" 2d	"

Those writers antagonistic to the serum treatment have laid particular stress upon the eruption, joint pains, adenitis, otorrhœa, renal complications, and sequelæ, as paralysis, etc. The following are the answers to these questions: Skin eruptions, 32 cases; joint pains, 3 cases; adenitis, 14 cases; otorrhœa, no cases. Renal complications: Albumin, 24 cases before, 2 cases after injection; anuria, 1 case after injection; nephritis, no cases. Sequelæ: Paralysis, 16 cases, counting 12 cases of aphonia.

These proportions above given are sure, not a contraindication for the further use and observation of this treatment.

More stress has been laid upon the question of immunization. In Philadelphia alone, I think, this question can receive the fairest test. The Spartan simplicity of the Board of Health's methods, of our city, should receive the most profound attention of those who have no faith in immunization. The Philadelphia Board of Health's methods are unique, to say the least, to prevent the spread of contagious diseases. They lock the healthy with the sick, under lock and key, with what is termed strict quarantine, and a policeman at the front and rear of the house. They do not permit the healthy to come forth into the streets to enjoy the air, for they might pollute the atmosphere and spread contagion, but keep them penned in (and especially in our tenement system, you can imagine) so that the unfortunates form a very predisposing incentive for dangerous bacteria. I have here cards from Dr. Bolton (our bacteriologist of the Board of Health) representing two families. There was but one sick in each, and the rest were immunized. Whilst some of those immunized showed the Loeffler bacilli by bacteriological test, no visual traces were ever seen, nor were any symptoms noted in those or the rest that were so treated. The same experiments were made by Dr. Muehleck with the same results.

There were 276 cases immunized. Of these, 64 were adults and 212 children. One case was reported to me as becoming infected three weeks afterward. (Dr. W. S. Long, Haddonfield, N. J.) This case was an adult, aged thirty years, upon whom 5 c.cm. (500 units) were injected. Visual traces of the disease being seen, 15 c.cm. (1500 units) were injected; the case was one of the faucial palatal variety. Of the 276 cases, 201 showed the bacilli, or other evidence that was suspicious.

In pursuing my work I had no assistance from the different hospitals (the Boston City Hospital, South Department, excepted) to make comparisons. I therefore adopted the classification of Lennox Browne, London, Eng. (*The Journal of Laryngology, Rhinology, and Otology*), as most satisfactory to myself and of some value and interest, as it would place in comparison his report of a hospital—the Metropolitan Fever Hospital—and the report of private practice. Inasmuch as Lennox Browne sees no value in the antitoxin treatment, and may be classed as an antagonist, the reports placed in justaposition have an increased interest. I shall, therefore, follow his methods as follows:

Series A refers to cases under former treatment. Series B under serum treatment. Actual mortality is the same in both series. The serum employed is that provided by the British Institute of Preventive Medicine.

1. Mortality of age periods.

Age.	A.			B.			My own stat.		
	Number of cases.	Deaths.	Per cent.	Number of cases.	Deaths.	Per cent.	Number of cases.	Deaths.	Per cent.
Under 5 years...	51	42	43.1	43	23	53.48	110	7	6.40
5 to 10 " ...	28	3	10.7	37	3	8.1	68	6	8.74
Over 10 " ...	21	2	9.5	20	1	5.0	44		

2. The day of the disease on which treatment was commenced.

Any treatment when begun early is sure to be successful in almost all disease, is an aphorism which will not hold good in diphtheria. Though Lennox Browne, Winters, Rosenbach, and some others of those antagonists to serum-therapy are contrary. As a matter of fact, prognosis in diphtheria is almost an impossibility. We know how in an hour cases can become septic, or how in a moment a sufferer from diphtheria may perish. No matter how bright the outlook may be at the beginning or how mild a case it might be, no one can predict an end. Therefore, any reason given against the assertion of its advocates—"the earlier antitoxin is used the more certain its success"—is fallacious and misleading. "The following figures (A and B) show that there is no warrant for special application of so general a law to the case of the serum remedy, the dates on which serum commenced corresponding so closely." (Lennox Browne.) I think there is warrant for special application.

Day of commencement of treatment.	Series A. Number of cases.	Series B. Number of cases.	My own number of cases.
1	2	2	43
2	29	24	84
3	22	32	61
4	20	17	19
5	8	9	4
Over 5	19	10	11

Browne makes this assertion: In hospitals for diphtheria, where it is the rule for nurses who have the least symptom of sore throat to present themselves to the medical superintendent for immediate examination, and where the disease is, therefore, attacked at once, a fatal result is almost unknown, and this under the former method of treatment. In the hospital where these observations were made, 42 cases of diphtheria have occurred in the staff during the last five years without a fatal result. I wish I could give some statistics of the hospitals in comparison to this. In my own practice at present I immunize the nurse, and accomplish the same purpose.

3. The following figures show the *prolongation of life in cases with fatal results.*

Day of death.	Number of deaths.		
	Series A.	Series B.	My own statistics.
Within 24 hours	11	3	7
2d day	2	1	4
3d "	4	3	1
4th "	3	4	0
5th "	1	2	0
6th "	3	1	0
7th "	1	1	0
8th "	1	4	0
9th "	0	1	0
10th "	1	0	0
16th "	0	1	0
21st "	0	1	0
27th "	0	0	1
32d "	0	1	0
30th "	0	1	0

4. *The site of membrane* is to be considered an important indication of the series of cases, and although Series A has fewer examples of nasal diphtheria—the most fatal form—*per contra*, it has many more examples in which membrane extended to the larynx and a larger number of tracheotomies. (Lennox Browne.) I might say the same of my series, with the difference of intubation for tracheotomy, where intubation or tracheotomy was not necessary, all laryngeal cases recovered; so much for statistics:

Site of membrane	Series A.	Series B.	My own.
Fauces	60	65	63
Larynx	2	0	20
Fauces and larynx	16	3	50
Faucial and nasal	17	28	6
Faucial, nasal and laryngeal	1	2	14
Nasal	1	1	0
Hard palate	0	1	0
Faucial and palatal	1	0	56
Faucial and buccal	1	0	13
Faucial and vulva	1	0	0

Browne adds: "With regard to *nasal* diphtheria, whether in association with the fauces or larynx, or both, we have found in 1000 cases, tabulated with regard to site and other items of interest, that this variety was fatal in 67 per cent., and in the present comparison we find in Series B a total of 31 cases of this class, 16 of which ended fatally—in other words, 50.16 per cent. This in favor of serum, for under the older method of treatment, as represented in Series A, out of a total of 19 cases 12 died, or 63.15 per cent." My own statistics show but 20 cases, of which 7 died—a mortality of 35 per cent. Our conditions may, however, have been different, still it shows by Browne's own figures the value of serum-therapy.

"In the cases in which the larynx was involved, in Series A., 7 died without operation out of a total of 18; these included 1 case which died within twenty-four hours of entrance to the hospital, intubation having been per-

formed previous to admission; 4 tracheotomies were performed, of which number 2 died.

"In Series B there were 5 cases of laryngeal diphtheria, and of these 2 died; in 1 of the fatal cases tracheotomy was performed. These numbers are certainly too small to deal with, but evidence from other sources is distinctly in favor of serum treatment with regard to laryngeal diphtheria." (Lennox Browne.)

In my statistics there were 84 cases of which 12 died; 14.34 per cent. 31 were intubated, of which 5 died; 16.23 per cent. I think in laryngeal diphtheria the specific action of antitoxin can be proven. In a former paper at Chambersburg, Pa., before the State Medical Society (*Medical News*, June 8, 1895), I pointed out this fact; further experience has more firmly impressed this upon me. Besides, in those cases intubated antitoxin exerts such a specific action that the length of time a tube should remain in the larynx can be known to a certainty. Where formerly we never could tell when the tube should be removed, we permitted it to remain—except where it was removed by coughing—at least one week before we thought of removing it. Now, on the fourth day all tubes are removed, and in the majority of cases reinsertion is unnecessary. The same was noticed by Bökai, whose cases I also quote.

5. *The day of treatment on which the membrane commenced to separate:*

Day.	Series A (50 cases).	Series B (100 cases).	My own (222 cases).
1	10 or 20 per cent.	1 per cent.	25 or 11.25 per cent.
2	13 or 26 "	28 "	51 or 23 "
3	18 or 36 "	36 "	72 or 33 "
4	7 or 14 "	14 "	73 or 33 "
5	2 or 4 "	2 "	1
7	0	1 "	0
12	0	1 "	0

6. *The day on which the throat was declared free of membrane:*

Day.	Series A.	Series B.	My own.
2	4	1	17
3	13	4	71
4	14	9	73
5	14	18	39
6	8	18	7
7	6	10	5
8	5	2	5
9	1	1	1
10	1	1	0
11	1	0	1
12	0	2	0
13	0	2	0
14	0	2	1
16	0	2	2
17	0	1	0
24	0	1	0
28	0	1	0
29	0	1	0

7. *Skin eruptions and joint pains.* These symptoms were known to Behring, who (*Das neue Diphtheriemittel*, Behring, Berlin, O. Häring, 1894) says it might be due to the serum, but not to the antitoxin. He would investigate this matter and see what the reasons were. Probably the serum may have been used too soon before the Ac. Carbol. had settled. At any rate, I cannot see anything dangerous in these symptoms, as they pass so rapidly away without treatment. Browne saw eruptions frequently, and in his series of cases saw 4 cases of joint pains. In my series eruptions were noted 32 times, joint pains 3 times.

8. *Adenitis* was observed in 18 cases in Series A and in 28 cases in Series B. In my cases it was noticed 14 times. In Browne's statistics the proportion of cases which went on to suppuration was about equal in the two. As far as I have learned no case suppurated. In connection with this question of suppuration, Browne mentions that there were 2 cases of abscess at the site of injection. We have never noticed any.

9. Otorrhœa was never noted, but ozœna was in our cases.

10. *Renal complications.*

a. Albuminuria was found by Browne 38 times in Series A and 50 times in Series B. It was noted in my cases 26 times. This, however, may be incorrect, as many of the cases were not examined.

b. Anuria was noted once. It was noted twice in Series A and 7 times in Series B.

c. Nephritis was not noted in this group of cases. In Series B the 7 cases that perished from anuria, 5 of them were proved to have nephritis by post-mortem examination.

11. *Heart failure* was not so specially noted in this group. Browne notes 4 cases in his Series B. Of other causes of death in Series B, 6 were due to broncho-pneumonia, and 1 to septic peritonitis. Broncho-pneumonia was the cause of 1 death in my group. Sepsis the cause of several.

12. *Paralytic sequelæ.* 14 per cent. of cases in all cases, including Series A and B, is noted by Browne. In our group it has occurred 16 times. Baginsky remarked at Munich that "paralysis is

more frequent under antitoxin than before." Lennox Browne does not think so by his series, nor is such the fact by mine.

It is to be regretted that the experience of Lennox Browne was such as to impress him unfavorably. His paper, from which I quote so largely and the style which I follow so closely, impressed me as no other monograph on this subject has. The methods of hospital treatment may in some way act contrary to our expectations, and on the whole be very disappointing. The only other hospital that I care to quote from—for it is the only one that I received an affirmative answer from—is the Boston City Hospital, South Department. I received from Dr. Calvin Gates Page, the interne, a short *rësumê*: "They used since July 1st antitoxin produced by the Boston Board of Health on 113 cases. There have been 90 recoveries and 23 deaths. Of the 23 deaths, 15 were hopeless cases when admitted. Of the 98 cases that received seasonable treatment but 8 died, showing a mortality of less than 8 per cent., whereas formerly the mortality from diphtheria has been 50 per cent."

In the *Deutsche medicinische Wochenschrift*, April 11, 1895, is a report from Dr. Johann Bökai ("Meine Erfolge mit Behring's Diphtherie-heilserum," read before the Budapest Königl. Aerztevereins, February 9, 1895) of the Budapest Stephanie Kinder Hospital (Diphtheria Department.) This report is most interesting, as Dr. Bökai studied his cases as I mine. Seeking those symptoms upon which the antagonists of antitoxin lay such particular stress, the following is a brief summary:

Number of cases, 120; deaths, 31; 25.5 per cent. In cases not operated the mortality was 14 per cent. In those operated (intubation) the mortality was 43 per cent. The ages were: Under one year, 1 case; over one year, 22 cases; over two years, 22; over three years, 24; over four years, 18; over five years, 13; over six years, 6; over seven years, 7; over eight years, 2; over nine years, 1; over ten years, 1; over eleven years, 2; over 12 years, 1.

The variety of diphtheria was as follows:

Variety.	Cases.
Faucial	41
Faucial and nasal	13
Faucial and conjunctiva	1
Faucial and vulvitis	2
Laryngeal (not operated)	14
Laryngeal (operated)	49

His 31 deaths were in children of the following ages: Under one year, 1 case; over one year, 10; over two years, 7; over three years, 4; over four years, 3; over five years, 1; over six years, 1; over seven years, 3; over ten years, 1 case.

Of these deaths, 18 (therefore over one-half) were in the first two years.

Death occurred as follows: 1 case five hours after admission, 1 case 12 hours, 1 case eighteen hours, 2 cases twenty hours, 1 case twenty-three hours, 5 cases twenty-four hours, 1 case forty hours.

The cause of death was: Sepsis in 5 cases, descending croup in 13, pneumonia in 7, paralysis of the heart in 3, nephritis in 1, scarlatina in 1, tuberculosis in 1.

In all his cases Bökai saw not one sequel (paralysis of the heart, post diphtheria, paralysis nephritis), but all cases when cured recovered fully.

Bökai studied particularly albuminuria, and found it in 37 cases; the duration was: In 6 cases one day, in 5 cases two days, in 5 cases three days, in 6 six cases four days, in 3 cases five days, in 4 cases six days, in 3 cases seven days, in 1 case eight days, in 1 case eleven days, 1 case twelve days, 1 case thirteen days, 1 case twenty-two days.

The skin rash was noticed in 11 cases: 1 in three days after injection, 3 in six days, 1 in eight days, 3 in ten days, 1 in eleven days, 1 in twelve days, 1 in thirteen days.

The duration of the erythema was: In 4 cases one day, in 2 cases two days, in 1 case three days, in 2 cases five days, in 1 case seven days, in 1 case eight days.

In 11 cases the erythema disappeared 6 times, without any symptom, 5 times with fever, and 4 cases the fever was very high.

Bökai immunized 70 cases with success, and describes an epidemic in another department of the hospital (measles) where diphtheria infected

those so affected; 14 remaining cases were immunized without one outbreak of diphtheria.

Other statistics are familiar to you all. The journals are full of them. In the *Therapeutische Monatshefte*, July, 1895, page 372, most of the late cases are described of those occurring in Europe. G. C. Crandall, St. Louis, Mo., (*Journal American Medical Association*, July 27, 1895), gathered the statistics to that date, including Heidelberg, Prague, Vienna, Berlin, Munich, Leipsic, Halle, Paris, London, New York, and Boston. The whole number of cases were 4022; mortality, 17.1; previous mortality, 42.0.

As those whose records have placed themselves as opposed to the serum-therapy speak of these statistics as misleading (Dr. C. L. Schleich and Dr. A. Gottstein, "Immunität, Infections Theorie and Diphtherie Serum," Berlin, 1894) and false; that many cases are reported now that would have never been reported, and were of mild character, hence the increase of cures. I have investigated this subject further and found that whilst, in truth, there may be some foundation for this assertion, other cases not reported, and the most serious, (membranous croup) would equalize this. Schleich gives the reason: a fear of quarantine and its necessary evils as the cause. Dr. Welsh, Philadelphia, told me different: his theory was to swell the statistics. However, as it is now conceded that membranous croup is diphtheria, and should so be reported, I asked Dr. Roger S. Tracy, Register of Records, New York, for a report of deaths from croup for New York, and Dr. S. H. Durgin, Chairman Board of Health of Boston, for the deaths from croup for Boston. These returns I have added to the former returns received, and I therefore give what I think should have been the true statistics.

Deaths from croup for January, February, March, April, May and June.

	New York.	Boston.
1886	478	37
1887	563	55
1888	401	73
1889	369	66
1890	304	43
1891	307	23
1892	361	31
1893	357	39
1894	338	28
1895	187	36

REPORT OF DEATHS FROM CROUP. NEW YORK BOARD OF HEALTH. Through Roger S. Tracy, M. D, Register of Records:

Month.	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895
January	97	115	92	69	46	66	61	90	64	40
February	87	93	77	67	59	49	68	63	50	33
March	102	105	76	69	56	67	62	66	62	36
April	72	98	51	61	65	50	76	49	61	32
May	56	95	57	61	44	44	63	56	65	28
June	64	57	48	42	34	31	31	33	36	18
July	60	27	28	35	28	37	52	30	22	28
August	49	22	29	25	26	22	30	41	20	29
September	48	47	37	38	24	48	42	28	21	
October	89	67	32	43	32	65	68	50	29	
November	126	82	43	55	53	59	57	37	41	
December	118	81	69	40	54	70	60	45	40	

REPORT OF DEATHS FROM CROUP. BOSTON HEALTH DEPARTMENT. Through S. H. Durgin, M. D., Chairman Board of Health:

Month.	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895
January	7	20	18	12	13	6	7	9	8	10
February	4	12	14	12	5	3	6	9	5	10
March	13	6	14	14	8	5	5	9	4	5
April	1	7	8	13	6	2	5	4	6	4
May	5	8	11	9	5	6	5	5	1	3
June	7	2	8	6	6	1	3	3	4	4
July	7	2	2	4	1	1	2	2	4	1
August	5	3	8	2	1	2	1	6	5	
September	6	3	3	11	4	1	3	1	1	
October	10	9	5	11	2	6	6	5	7	
November	14	10	13	8	5	7	12	4	6	
December	15	12	15	17	5	13	12	13	10	

Since 1890 diphtheria and membranous croup have been considered one in Boston; and in New York I think 1892 was the year where croup was declared contagious. The altered percentages are as follows:

	New York. Without croup.	New York. With croup.	Boston. Without croup.	Boston. With croup.
1886	47⅓	58.9	27 1/5	31.5
1887	43 1/20	52.9	27½	32.4
1888	29 1/10	36.5	34⅜	41.3
1889	26⅔	32 1/2	27 9/10	32.1
1890	27⅛	34.8	25¾	
	Croup and diphtheria Reported together under diphtheria.			
1891	26⅓		25½	
1892	27⅜		32⅜	
1893	31⅛		30⅕	
1894	26¼		30½	
1895	17⅓		15 1/3	

These statistics and cases explain themselves. What conclusions are drawn therefrom can easily be given. Clinical evidence is in favor of antitoxin, notwithstanding the contrary opinions expressed. For the different monographs upon this subject I am very much indebted to my cousin, Dr. A. Baer, of Berlin, who has also furnished me with my Behring's antitoxin. I am also under obligations to Dr. Roger S. Tracy, of the New York Board of Health, and Dr. S. H. Durgin, of the

APPENDIX.

Report from Dr. Roger S. Tracy, Register of Records of Board of Health for New York.

Diphtheria. New York.	1886		1887		1888		1889		1890		1891		1892		1893		1894		1895	
	Cases reported	Deaths returned	Cases reported	Deaths returned	Cases reported	Deaths returned	Cases reported	Deaths returned	Cases reported	Deaths returned	Cases reported	Deaths returned	Cases reported	Deaths returned	Cases reported	Deaths returned	Cases reported	Deaths returned	Cases reported	Deaths returned
January	945	155	1331	206	1952	218	2387	200	1343	110	1360	90	1555	153	1449	149	2539	286	2627	179
February[1]		149		170		171		187		117		136		114		135		210		142
March		134		180		232		208		132		137		140		175		216		154
April		124		173		162		228		121		116		153		144		214		155
May	818	142	1399	228	2013	232	2053	186	1270	123	1103	87	1299	140	1515	150	2805	271	2727	176
June		130		218		173		164		107		102		90		171		236		153
July		133		154		155		102		97		97		106		158		190		
August	708	104	1337	103	1100	116	973	85	703	66	900	89	809	76	1265	105	1761	139	1386	127
September		85		143		60		62		61		91		83		120		121		107[2]
October		165		161		100		80		80		110		90		164		141		
November	1266	188	1856	197	1426	131	1076	67	1034	107	1511	150	991	134	2239	242	2050	163		
December		218		234		164		117		141		166		157		257		172		

Report from Dr. S. H. Durgin, Chairman Board of Health of the Health Department, Boston, Mass.

Diphtheria. Boston.	1886		1887		1888		1889		1890		1891		1892		1893		1894		1895	
	Cases reported	Deaths returned	Cases reported	Deaths returned	Cases reported	Deaths returned	Cases reported	Deaths returned	Cases reported	Deaths returned	Cases reported	Deaths returned	Cases reported	Deaths returned	Cases reported	Deaths returned	Cases reported	Deaths returned	Cases reported	Deaths returned
January	122	29	128	38	112	35	179	59	203	63	80	16	102	28	152	49	195	61	340	55
February	104	25	93	29	80	23	150	42	189	49	71	18	108	31	114	32	128	46	294	55
March	110	26	96	24	105	37	193	40	156	41	59	13	114	35	116	31	185	56	205	29
April	66	22	101	19	107	43	205	54	164	40	71	17	135	52	70	27	139	42	191	37
May	73	22	75	22	142	53	170	50	144	36	81	24	107	39	86	33	187	58	221	32
June	94	30	68	22	110	37	165	57	114	29	49	16	77	23	111	25	167	43	327	43
July	75	22	53	11	97	29	93	32	73	28	31	6	76	19	88	30	138	41	268	40
August	78	27	40	14	92	27	99	36	69	27	36	8	78	23	102	28	154	60		
September	85	24	58	25	95	31	99	44	75	19	40	11	79	31	89	31	249	76		
October	133	38	112	31	143	51	137	49	96	18	78	27	144	35	194	72	450	109		
November	111	34	100	36	156	51	130	42	75	18	108	41	185	46	160	58	558	126		
December	140	39	130	45	172	53	174	59	117	33	127	35	175	52	183	60	469	99		

[1] Cases reported are only made up by quarters, not months. [2] Approximate for two months (July and August). August not made up yet; probably 6 or 8 more.

Boston Board of Health, for their kindness in furnishing me with statistics, also to Dr. Page, of the Boston City Hospital, South Department, for his statistics.

I am in favor of the antitoxin treatment of diphtheria; as an evidence of the correctness of my position I have given the reports of numerous physicians, the reports of three different hospitals, the extended reports of the cities of Boston and New York, and the combined statistics of Heidelberg, Prague, Vienna, Berlin, Munich, Leipzic, Halle, Paris, London, New York and Boston. Philadelphia has no statistics to present.

SUICIDE IN ITS MEDICAL AND ITS MORAL ASPECTS.

It has been noted elsewhere that a tendency to suicide has recently been somewhat unusually prevalent. In *The Lancet* of July 28, 1894, we suggested that this tendency might be capable of partial explanation on physical grounds, and in a later issue (August 11th) we published a letter by Dr. Alexander Haig bearing upon the same subject. The regular, though happily never frequent, connection between solar heat and this form of crime has been repeatedly observed, and may, without undue straining of logical conditions, be accepted, at all events as far as it goes, as a working hypothesis founded on accurate observation. When we go further and seek to explain the hypothesis itself, however, we are still conscious of the insufficiency of our data. The theory by which Dr. Haig would associate mental depression with blood vascular tension due to uric acid is indeed helpful in its measure, as it is certainly ingenious. The measure of assistance toward a sufficient explanation is nevertheless in both cases very meagre. It is evident that in the case of most persons a wide desert of despondency intervenes between the state of mind which corresponds to a hard pulse and overladen tissues and the last fatal folly of despair. Save in the case of insane or weak-minded persons, it is hardly possible to conceive that men can be impelled to suicide by purely physical conditions, which are, after all, so common as hardly to be regarded as abnormal except by the scientifically educated mind. We would by no means overlook the necessity of treating these cases by appropriate means, but we are none the less assured that the reckless will which induces men to convert a weariness of life into a purpose of self-destruction does not depend upon mere atmosphere or mal-excretion. Where they are free to operate, the reserves of moral sense, thought, and resolution have either been previously exhausted or have not been drawn upon. A feeling of personal loss or a morbid fear of such has obliterated the sense of human relationship. The interest of dependent or associated neighbors and of relatives is forgotten. Self-love, not social duty, is the impelling force. We have not much hope that persons in this mood will be greatly influenced by changes of weather or by purely physical treatment. We would rely more upon the full and frank assertion of the duty and utility of all human beings to each other and to the Providence essentially friendly to men which called them into being. Suicide is, after all, a moral failure, an evidence of the mastery of mistrust, an act of rebellion against the authority of patience. Obviously no drug, no social reform even, can effectually cure it, unless they be aided in the first place by a frank and full recognition of man's moral relation and responsibility. — *The Lancet.*

COMMUNICATIONS.

POST-ALCOHOLISM.*

S. V. CLEVENGER, M. D., CHICAGO.

Ethyl alcohol, spirit of wine, is commercially assumed to be the base of intoxicating drinks, and the purest of these is capable of working great havoc when abused, but the demand for cheap liquor in vast quantities substitutes for portions of the less harmful ethyl or vinic alcohol what is known to chemists as the poisonous amyl alcohol (potato spirit or fusel oil). The aroma or bouquet of liquors is largely due to certain ethers of the more poisonous amyl and butyl alcohols, notably the acetic and valeric; then super-added, all too often, by distiller, rectifier, wholesaler, and especially by the retailer, are sophistications, flavors and perfumes for the purpose of cheapening the resulting compound, which, by the time it reaches the average consumer, contains in addition to the alcohol diluents to increase bulk, articles to give it false strength, fictitious appearance, odor and taste.

In the English Licensing Act of 1872 (35 and 36 Vict. c. 94) there is a schedule of substances called "deleterious ingredients," found to have been used in adulterating intoxicating liquors; they are cocculus Indicus, common salt, copperas, opium, Indian hemp, strychnin, tobacco, darnel seed, logwood, salts of zinc or lead, and alum. Since then, ingenuity and cupidity have extended the list indefinitely among dye materials, both organic and inorganic; and there are also added correctives of acidity, such as litharge, lime, soda, potash; astringents, like catechu, oak bark and aloe leaves; earths for discolorizing; sweetening agents, and ethers for flavoring. Most of these articles are unwholesome, to say the least, and tend to debilitate and otherwise set up depraved bodily states.

Chronic alcoholism in its most obvious features is a condition of functional poisoning, such as is seen in its production of lethargy, stupidity and acute narcosis. Less noticeably, but gradually, it operates as a tissue poison, affecting parenchymatous elements, particularly epithelial and nerve structure, if not to a greater or lesser degree all the cellular components of the body. A slow degeneration is produced until the blood vessels are involved in thickening and fibroid changes. Oxidation of tissue is checked, since alcohol is consumed in place of the fat, leading to fatty changes, which may advance to general steatosis.

Dr. Magnus Huss, of Stockholm, in 1849 first prominently directed the attention of physicians to the subject of alcoholism, a term he was the first to use. He described the paralytic and anæsthetic forms of chronic alcoholism, also later referred to by Hammond ("Diseases of the Nervous System," 1881), Ross ("Diseases of the Nervous System," 1885), and other neurologists.

Gowers ("Diseases of the Nervous System," vol. I, 110, *et. seq.*, 1892) under the heading "Multiple Neuritis," gives still more recent details of these distressing consequences of drinking alcoholics.

Magnan (*De L'Alcoolisme des diverses formes du Delire Alcoolique, et de leur traitement*, 1874), Virenque, Hammond and others observed the occasional loss of sensation involving only one lateral half of the body, as in hysteria. The other special senses are generally implicated. Thus the patient loses the sight of one eye; cannot hear with one ear; can taste with only half the tongue; and smells with but one nostril.

Gowers (op. cit. 119), states that alcoholic polyneuritis is most frequently met with and preponderates over all

(**Jour. Am. Med. Ass'n.*, October 18, 1895).

other forms of nerve inflammation. It results chiefly from the stronger forms of alcoholic drinks, and especially from spirit drinking. It is more common among those who take small quantities frequently, than among those who indulge in an occasional spree, probably because the total quantity is greater by the former. It is far more frequent among women than among men; probably three times as frequent. Other causes often coöperate with alcohol in exciting polyneuritis, especially exposure to cold, and, in the poor, insufficient nourishment.

The symptoms consist in motor weakness, sensory disturbance and incoördination. The weakness involves first and chiefly the flexors of the ankle and extensors of the wrist and fingers in the forearm; the result is wrist-drop and foot-drop. Other muscles suffer in severe cases. The sensory symptoms are tinglings, pains, varying in place and degree, tenderness and loss of cutaneous sensibility. The incoördination resembles that present in the slighter forms of locomotor ataxia.

Neuritis is the most common finding in chronic alcoholic autopsies.

Catarrh of the stomach with furred tongue, heavy breath, a feeling of epigastric distress or "sinking," impaired appetite and constipation are ordinarily experienced.

The liver may undergo changes leading to various forms of cirrhosis. Sometimes moderate drinking may reveal a special liability to hepatic cirrhosis, while, on the other hand, hard drinking for thirty years may leave the liver nearly intact.

The stomach and liver disorders of drunkards produce dilated veins of the cheeks and nose, causing suffusion of those parts; acne rosacea. The eyes are watery, the conjunctivæ hyperemic and often tinged with bile.

Formad claims that the kidneys are hypertrophied without other change as a rule, and Guy's Hospital Reports verify this finding. Pitt places this as occurring in 43 per cent. of hard drinkers, and where the typical granular kidney occurs it is indirectly caused by arterial changes. (Osler, "Practice of Medicine," 1001, 1892).

The greatest variability in general manifestations can be found in different patients amounting to idio-syncrasies in particular cases, and in other patients are classifiable into groups of a greater or less number.

The organic changes seem to be erratic, but are according to the resistance of organs. As a forerunner of serious alterations in the spinal cord, neuritis is not a simple and harmless disorder.

Magnan has demonstrated an alcoholic paraplegia in which Buzzard found electrical degeneration reaction. Some cases end fatally, though Bramwell ("Diseases of the Spinal Cord," 307, 1884), considers it for the most part functional. Broadbent's description (*Medical Times and Gazette*, February 16, 1884), in which myalgic pains, hyperesthesia and double wrist-drop is included, should be compared with the pathologic changes found by Eichorst, of Zurich (*London Lancet*, May 19, 1888), attending alcoholic neuritis, in cases of incoördination followed by paraplegia and wrist-drop, tenderness of muscles, anesthesia, abolition of reflexes, and, finally, vesical and rectal paralysis. The pathologic anatomy consisted in cord hemorrhages in the dorsal gray, thickened, blood vessels, degenerated and atrophied tibial and radial nerves with axis cylinders destroyed; the peripheral extremities were worst diseased; connective tissue proliferations of endo- and perineurium and inflammatory changes in their vicinity. A muscular atrophy was secondary to the neuritis, the nerve sheath inflammation extended to the interstitial muscular tissue. Bramwell notes that myelitis and other forms of organic disease may be caused by alcoholic excess, hence the paralysis may be permanent and incurable.

The enfeeblement of judgment and will may finally end in dementia.

Post-mortem does not show any particularly characteristic changes in the nervous system invariable for all cases of chronic alcoholism, showing that resistance is greater in some than in others. Sometimes hemorrhagic pachymeningitis is observed with thickening and opacity of the pia-arachnoid membranes and wasting of the convolutions, or there may be a chronic encephalomeningitis with membrane adhesions, but most of these pathologic states are

in advanced cases of alcoholism, the more incorrigible sort, as can be readily believed when we note the fact of many chronic drunkards having been reclaimed and restored to the world about as they were before the habit was formed. The older the patient and the longer the addiction, the greater probability would there be of finding organic changes in the brain and its envelopes and blood vessels.

Many chronic alcoholic insane exhibit remarkably close resemblance of symptoms to those commonly found as the result of injury to the brain, in traumatic insanity. These symptoms are: changes of character, lapses of memory, headaches, sleeplessness, irritability, suspiciousness, long apparently lucid intervals, homicidal and suicidal impulses, delusions of persecution. These peculiarities appearing in the alcoholic insane long after being incarcerated in an asylum, during which time no intoxicating liquor has been taken by them, point clearly to organic brain destruction, accomplished from within, but as severe and hopeless as when the brain had been injured by a blow upon the head, with subsequent extension of inflammation to the membranes and cerebral tissues.

It is when the mental degradation which temporarily occurs in alcoholism becomes permanent that chronic alcoholic insanity may be said to exist. During the acute stages there may be hallucinations, illusions and delusions which disappear on recovery from the blood poisoning; the persistence of some of these states betokens permanent damage to the mental apparatus, and the brains of the chronic alcoholic insane invariably exhibit evidences of destructive organic changes.

It is with astonishing frequency that jealousy of the wife or mistress exists to an exaggerated degree in most forms of drunkenness, from simple suspicion to delusions of marital infidelity, which in extreme cases may originate hallucinations of gross amours being carried on in the patient's presence.

It sometimes happens that the alcoholic may have grounds for suspicion in facts, but this does not lessen the delusional origin of his accusations. A frequent outcome of the notorious marital unhappiness thus caused is a brutal wife murder, the body of the victim sometimes being found hacked to pieces or partly destroyed by fire. The insane fiend may make but a stupid attempt to escape, or none at all, either expressing surprise at, or doubt of the reality of the event, or attempting justification in explanations.

The memory and intelligence suffer gravely, though not always obviously, for it may require considerable familiarity with the former peculiarities of the patient to determine the degree of mental impairment, and comparisons of his past and present are often possible only when he has been under observation for a greater or lesser period; in some cases months may be necessary. He may be able to attend to routine duties, but is inconstant and easily diverted. The reasoning powers are lessened in varying degrees, and many such changes are not determinable off-hand.

Delusions, particularly such as relate to the wife's unfaithfulness, are fixed, but not systematized, for his explanations concerning them are vague and illogical. There is a melancholic persecutory tinge to all his ideas.

Some cases of chronic alcoholism on the verge of chronic alcoholic insanity experience auditory hallucinations of mandatory and accusatory kinds, and these may become so distressing as to lead to suicide, homicide, or insane acts generally. The dangerous character of insanity with auditory hallucinations is fully recognized by alienists.

In asylums for the insane will be found many cases of insanity that have been complicated with alcoholism, particularly a peculiar form called traumatic insanity, the result of head injuries, after the receipt of which there is a remarkable tendency to drink to excess, and the alcoholism may be combined with the traumatic insanity in every conceivable degree, sometimes outrunning the original psychosis in its influence for evil. Epileptics are sometimes incorrigible drunkards, and epilepsy may appear for the first time when an alcoholic has abstained from liquor for some unusual length of time. In such cases there may have existed petit mal, unnoticed previously, or even convulsions may have occurred at night,

during sleep, and after stopping the use of liquor the fits have appeared during the day, through the alterations in habits. Any other form of insanity may have, to some degree, the impress of alcoholism to modify it, and where this complication is extreme, as it is frequently in the head injury cases mentioned (sunstroke victims fall into this category), there are characteristics in common with those of chronic alcoholic insanity that are well recognized by asylum physicians and that often cause considerable annoyance.

Soon after the commitment of a chronic alcoholic insane case to the asylum or hospital, he appears to improve remarkably, if he escape the consequences of his last debauch and does not die of pneumonia or exhaustion; locked up at first in a ward, he is sooner or later trusted about the grounds and can be made very useful as a workman of some sort. He may refrain from asking for a discharge for a long while for the purpose of convincing the superintendent of his recovery, but unless the patient conceal his delusions, as many insane do, he is liable, with a little questioning or in his letters to friends or relatives, to reveal the permanency of his delusions of persecution. The writings of some of these apparently sane alcoholics contain the foulest abuse of mother, wife, or children, without the least warrant for it in their former treatment of the patient.

Sometimes a weak-minded relative may be found espousing the cause of the "unjustly detained" alcoholic, or well-meaning but misguided friends may satisfy themselves of the "recovery," and even resort to habeas corpus proceedings to secure the patient's discharge.

Under the watch and restraint of hospital sojourn and their gradual admission to parole, with occasional breaks thereof, many of these patients assume, to all appearances, their original mental condition. To the superficial observer they are perfectly sane; many work cheerfully in the shops and talk quite intelligently about the possibility of relapses if allowed to go. But a large percentage are importunate, and these are the least to be trusted, for their anxiety to flit is born of their inability to gauge their feeble will power to resist temptation. If they are discharged, back they come, not infrequently with newspaper and other criticism of the hospital authorities for having liberated such a dangerous character. These same critics are just as liable to write up sensational comments on the injustice of keeping perfectly sane persons at the behest of relatives who, the critics affirm, have some pecuniary motive in the patient's being deprived of liberty. Nor is the trouble taken to inquire whether the county is charged with the case as a pauper or not.

When habeas corpus proceedings are begun, the natural inference is that there must be some malign reason for the detention. Probably it is just as well in the long run that the public should be suspicious, but the conscientious hospital physicians are put to unnecessary trouble in explaining matters of pathology and general medical experience to laymen who are much more familiar with business affairs.

The hospital physicians will congratulate themselves that cases of this kind are improving, and discuss the advisability of trusting them on parole, preliminary to letting them go home on trial, but the records of the cases suggest caution, such as domestic horrors, including attempted wife murder, brutality to children, improvidence to a criminal degree, the wife usually faring the worst, though when he is not drinking she claims her husband to be the "best and kindest of men."

Notwithstanding all this, such near relatives often beset those in charge of the hospitals to liberate their husbands, sons or fathers; poor ignorant creatures, because they can only see the hopeful side of matters for themselves, and can not appreciate the vast fund of information possessed by the doctors as to the frequently disastrous consequences of too early discharges, or, sometimes, any discharge at all.

The alcoholic insane have been apparently sane while at the asylum, and even after ten years' trial when they were allowed to return home they would resume all their bad habits, such as furniture smashing, chasing the family into the streets with axes or knives, and after being returned to the asylum in a maniacal state they would resume all

their apparent sanity and sweetness of disposition, which arouse the suspicion of the visitor that some unworthy motive on the part of somebody withholds so useful a person from society at large.

Among the sadly comic instances of this kind appear liberations after carefully weighing probabilities and enduring the threats, entreaties and promises of the family and patient, against the better judgment and misgivings of the physicians; and when something does occur from the risk, as too often happens, forthwith not only the public, but the relatives censure the weakness of the doctors for having listened to them at all.

A washerwoman, who had about as much experience with the inner life of a large city as some physicians acquire, used to dub the defects produced by alcoholism as "street angels and home devils." Much danger to the community exists in the seeming sanity of such cases. There is no provision for their incarceration on the ground of the great liability to be homicidal, and when they do commit a murder it is a difficult matter for the public to comprehend the insanity during the quiet stage induced by imprisonment and liquor deprivation.

Alcoholic dementia is simply a secondary or terminal dementia of profound type, that has usually supervened upon alcoholism, the intermediate stage of chronic insanity being often short, or having escaped notice altogether, as such; being merged from the general alcoholism. It is as permanent and incurable as any other secondary dementia. The organic brain and blood vessel changes in this, and other chronic alcoholic insane states often shorten the lives of patients; many succumb from pneumonia which proves so fatal to drunkards generally.

Post-alcoholic conditions are such as become evident during abstinence after the protracted use of liquor.

If the shock of abstinence is rallied from, we can then determine how much is left of the patient. Destructive changes in the brain may be, to an extent, masked by drinking; that is, the behavior of the patient may be erroneously ascribed to the drinking, when it in larger part may be due to brain alterations produced by over-indulgence.

The extreme ground is taken that by whatsoever means recovery from habitual drunkenness is made, the health is never regained. Dr. Clum (*Quarterly Journal of Inebriety*, October, 1891, 382), observes that those who have been addicted to the excessive use of alcoholic beverages for a number of years, may be restored to a state of sobriety, but they are generally left with an entail of chronic disease which eventually ends their career. They die temperance men, but die as a result of disease contracted by the excessive use of liquor. The habit is abandoned and nature and remedies are given a chance to do their part toward reinstating the individual, but the vital organs have been injured beyond reparation.

This gloomy outlook for the "reformed" inebriate concerns a large percentage of cases, but is far from being universal. Drunkenness is not the only consideration; the health previous to and during the addiction should be regarded, aside from, as well as with, the drinking habit and its extent; the age, associations and conditions, such as exposure and immoral practices, as incidental or consequential matters, need consideration in ascertaining how far a breakdown is ascribable to drink or its stoppage.

Heart weakness that had previously been compensated to some extent by stimulants, whether created by their use or not, often becomes apparent in post-alcoholic life. Syphilis is known to have become modified and somewhat checked through alcoholic poison acting upon the syphilitic poison, and when this antagonism ceases, the syphilis has become more virulent. Livers, kidneys, nerves and brains that have been structurally degraded cannot be restored by mere change of habit; indeed, paralytic states may become evident immediately after liquor withdrawal through the shock of readjustment to new vascular workings. For example, when an alcoholic neuritis with membrane thickening and beginning spinal cord myelitis has been inaugurated through alcoholism, the sudden change in the circulation, caused by abstinence, will inevitably render the physical consequences of

such inflammatory and neoplastic states more apparent. Pressure symptoms, debility, and marked sensory and motor impairment are liable to occur, from monoplegias to complete paraplegia.

Tremens begins during the abstinence of drinkers, and from circulation changes in the brain, temporary sobriety causes a dazed, bewildered mental state in the hard drinker. Even were the craving destroyed, and were the will-power to resist drinking to be imparted, by any means, too often the inebriate then finds himself so completely out of his environment, so changed are inner to outer relations as to what constituted his previous existence, that he rushes back to his former habits about as a fish would take to water, and for analogous reasons.

Hard drinkers are the first to succumb to epidemics, such as cholera and yellow fever, and abstinence merely uncovers the debased organic weakness that these epidemics co-operated with destructively.

After prolonged use of liquor, abstinence sometimes is followed by acute melancholia in which the delusions of that psychosis are commingled with some that are peculiar to alcoholic insanity. This depressed state seems to be owing to exhaustion of the system habituated to alcoholic sustenance, and not yet readjusted to the assimilation of proper food.

A demented condition, more or less profound, may set in from the same causes. A well-known stockyards millionaire, of Chicago, had, up to his sixtieth year, guzzled fusel oil in all its disguises as ethyl alcohol compounds, and a sharper, shrewder person was hard to find; but he abandoned his drinking suddenly, utterly and completely, and during the succeeding three or four years gradually became incapable of attending to business, presenting the apathy, memory loss and other characteristics of what was known as "primary mental deterioration," but which Voisin claims to be "atheromatous insanity," the blood vessel destruction found postmortem justifying the designation. While this mental malady is often independent of alcholic habits, its appearance as apparently connected with the stoppage of drinking is worth noting. In those who indulge many years, and then quit drinking, the alteration in behavior is quite observable; they are certainly quieter, calmer, and while doubtless far better off than when stimulating, the general one is below what it used to be, or what it would have been had they not drank at all; meddling with fire must be at the expense of some scars. While atheromatous insanity may occur in the temperate, a condition like it, if not identical with it, could readily be conceived as consequent upon abstinence after long addiction, or the pathologic condition mentioned itself could be directly induced by alcohol, and persist, whether alcohol is or is not taken after the condition is instituted. The tendency to steatosis in the intemperate can be recalled in this connection and doubtless many cases of so-called dementia from abuse of alcohol may be found to be of Voisin's type of atheromatous insanity.

The hyperemic state of chronic alcoholism necessarily alters the cerebral circulation in various ways in many, but not in all cases, causing endarteritis, leucocytic exudation, neoplastic organization and capillary extravasation into the cerebral tissues comparable to the rosacea observable in some drunkards' cheeks and noses. In my autopsies of the alcoholic insane at the county asylum, I invariably noticed a rusty discoloration of the dura mater along the course of the superior longitudinal sinus, and other evidences of old inflammatory conditions, such as adhesions of the membranes and cerebral tissue of the convexity and basilar regions. The vascular and meningeal alterations varied in degree according to the patient's age. Where frailty of blood vessel organization existed congenitally, there was greater liability to pathologic change in such cases.

The finer mental coördinations in any one are maintained by effort; being the latest faculties acquired, and their tenure being so dependent upon full brain integrity, it is plain that the moral nature has been superimposed upon the less easily destroyed brute nature, through finer and weaker histologic arrangements acquired and inherited, demanding for their exercise the clearest kind of brain activity. Vitiated blood

quickly blots out these better but feebler functions for the time being, just as exhaustion is felt first in our weakest joints. So the moral nature, which is merely a higher intelligence, may depart when the seat of intellect is weakened by any cause, such as senility, drinking, insanity, arrest of debility, traumatism and some diseases.

When certain pathologic adjustments, involving imperfect compensations, occur, such as thickened arterial walls which resist the increased flow of blood, then a new plane of mental operation is established, which, if disturbed by change of habits, as by withdrawal of the customary greater heart impulse, it is but partially and inadequately recompensated by the pure blood. Practically, the adjacent cerebral tissue must suffer from anæmia to a greater or lesser extent, and where previously the blood was driven through disarranged avenues, it now makes its way feebly, and in some places not at all. Nor is this all; the sclerosed and otherwise changed tissue becomes a more prominent hinderance to function when the artificial nutrition and circulation is cut off. So the poor fool of a drunkard is too often thus "damned if he does, and damned if he don't" continue.

Summarizing post-alcoholic bodily and mental states, there may be found many organic destructive changes in the blood vessels, liver, nerves and brain, which were not so evident during the addiction, owing to the somewhat compensatory effect of the alcohol, and hence the masking of diseases.

The simple privation may kill through the weak heart losing its wonted stimulant, but such cases are not very common; debility is the most frequent consequence of "reform," but this is often a return to what preceded and may have led to the over-indulgence. Cerebral blood vessels subjected to engorgement are liable to rupture at any time where weak points exist, and fatty degeneration of vessel walls, induced by the liquor, may culminate in apoplexy, whether drinking is continued or not.

A single severe attack of delirium tremens may make profound changes for the worse in the future workings of the brain, and the typhoid stage of some cases of delirium tremens show the ravages of the poison often in life-long sequelæ.

Chronic alcoholic insanity may make its first gross appearance after abstinence, enforced in jail or otherwise.

Necessarily, when liquor is withdrawn, a change for the better is ordinarily the rule, but such withdrawal in some cases may operate as a shock, and in all cases a readjustment of the entire physiologic make-up must occur. It is conceivable that epilepsy or insanity may find in such shock a potent exciting cause, and the whisky soaking is ample as a predisposing influence, when it can alter the brain structure, in time, as thoroughly as a contusion or a concussion.

But what the inebriate has drank, how long he has been drinking, and his power of resistance, associated diseases, hereditary and other tendencies, are to be taken into account; and with these it is surprising how large a number of heavy drinkers escape any obvious trouble due to such excesses. A well-known druggist of Chicago was a sot until his fortieth year, stopped drinking and died at seventy years, having built up a large business; while others, who had not taken half his risks with liquor, succumbed during or after ceasing their bad habits.

Post-alcoholic conditions, such as insanity, paralysis, weak heart, etc., that occur in a minority of cases after alcoholic disuse, only the most thoughtless or perverted could use as arguments against the stopping of drink; as the liquor, in most cases, produced the trouble which merely culminated after the habits were changed; such climax, being inevitable in any case, and impending, might have been reached earlier, or, in a graver form, had the inebriety continued.

In a few words, drunkenness is a constant menace to the mental and bodily health, and it is far safer to escape from its ravages, scarred and maimed, than to go on sooner or later to certain destruction. Though the vast majority may be rescued entire, or nearly so from intemperance, no one can tell what the chemic devil has left of him until months or years of sobriety have passed.

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PHILADELPHIA, SATURDAY, NOVEMBER 9, 1895.

EDITORIAL.

RELATION OF MEDICINE TO LIFE ASSURANCE.

Life assurance, during the thirty years past, has grown to immense proportions. The majority of the companies, being mutual and sharing the profits with their policy-holders, not only illustrate the genius of modern enterprise, but demonstrate the shrewd business foresight of the people in providing for those casualties to which human life is exposed.

The great wealth of such mutual companies has established them in public confidence as safe depositories and profitable avenues for the investment of surplus earnings. Having in their keeping other people's money, their trust capacity has imposed weighty obligations for throwing about their business every safeguard wisdom and experience can invent.

The forms of application and contract are prepared by the companies with great care and minuteness of detail. Every statement in the application must be substantially true. The company stipulates that its liability shall depend upon the truth of the answers to all questions it has determined as prudent and wise precautions in accepting risks. And the applicant agrees to the prudence and wisdom, in the letter and spirit of their requirements, by accepting the test.

From the fact that the companies themselves, independent of and without consulting the insured, prepare the applications and agreements with such care and minuteness of detail, courts and juries, in their decisions of insurance cases, lean to the insured; where ambiguity exists, the insured gets the benefit. The policy issued purports by its terms to be made by the company in consideration of the representations made to them in the application for the policy. The interrogations put to the assured usually cover every conceivable phase of human disease. The an-

swers to these statements as to physical condition must be true. These answers constitute the bases of the contract for insurance, and any untrue or fraudulent answer or any suppression of material facts, renders the policy void.

The application for the insurance is part of the policy, and the answers therein contained constitute the bases of the contract. By the questions inserted in the application, the insurance company seeks for information bearing upon the risk which it is to take and the probable duration of the life to be insured.

It does not seek for information as to merely temporary disorders or functional disturbances having no bearing upon general health or continuance of life. Such restrictions would greatly limit the insurance business. Colds, for instance, are generally accompanied with more or less congestion of the lungs, and yet in such a case there is no disease of the lungs which an applicant for insurance would be bound to state. So most, if not all, persons will have, at times, congestion of the liver, causing slight functional derangement and temporary illness, and yet having regard to general health and the continuance of life, it may be safely said there is no disease of the liver. It is generally true that before any temporary ailment can be called a disease it must be such as to indicate a vice in the constitution, or be so serious as to have some bearing upon the general health and the continuance of life, or such as according to common understanding, would be called disease.

If the applicant for a policy for insurance has any affection amounting to disease of the kind mentioned in his application, his negative answer would be a material misrepresentation, no matter how mild the character of the affection.

One of the perplexing questions for the physician to determine is, what constitutes sound health? It cannot mean absolutely perfect physical health. As a learned judge has expressed it: "We are all born with the seeds of mortality." The legal decisions bearing upon this point are numerous. Some of them would strike members of the medical profession as rather ludicrous. Probably the best and most applicable of dicta has been laid down in a New York decision:

"The epithet 'good' is comparative. It does not require absolute perfection. When, therefore, one is described as being in good health, that does not necessarily nor ordinarily mean that he is absolutely free from all and every ill which 'flesh is heir to.' If the phrase should be so interpreted as to require entire exemption from physical ills, the number to whom it would be strictly applicable would be very inconsiderable. In applying terms somewhat indefinite, reference should be had to the business to which they relate. This rule is very necessary when construing a language which, like ours, is defective in precision. The most important question in applications for life insurance is, whether the proponent is exempt from any dangerous disease—one which *frequently* terminates fatally. It is not usually deemed an objection that one has some slight physical disturbance, of which in all human probability he will soon be relieved, although it might possibly lead to a fatal disease. A slight difficulty, such as the sting of a bee, the puncture of a thorn, a boil, or a common cold, has sometimes induced complaints which have shortened human life; but this result is so infrequent and improbable that the mere possibility is disregarded in the business of life insurance."

There is a wide divergence of opinion as to the doctrine of irresponsibility from ignorance. There is much of sound reasoning in the following opinion:

"Looking into the application upon the faith of which the policy was issued and accepted, we find much justifying the conclusion that the company did not require the insured to do more, when applying for insurance, than observe the utmost good faith, and deal fairly and honestly with it, in respect of all material facts about which inquiry is made, and as to which he has, or should be presumed to have, knowledge or information. The applicant was required to answer yes or no as to whether he had been afflicted with certain diseases. In respect of some of those diseases, particularly consumption and diseases of the lungs, heart, and other internal organs, common experience informs us that an individual may have them, in active form, without at the time being conscious of the fact, and beyond the power of anyone, however learned or skillful, to discover. Did the company expect, when requiring categorical answers as to the existence of diseases of that character, the applicant should answer with absolute certainty about matters of which certainty could not possibly be predicted? Did it intend to put upon him the responsibility of knowing that which, perhaps, no one, however thoroughly trained in the study of human diseases, could possibly ascertain?"

"What is meant by 'true' and 'untrue' answers? In one sense that only is true which is conformable to the actual state of things. In that sense, a statement is untrue which does not express things exactly as they are. But in another and broader sense the word 'true' is often used as a synonym of honest, sincere, not fraudulent."

In connection with this subject the questions which are of interest and which address themselves to the knowledge, skill, and integrity of the physician are too numerous and complex for discussion in brief space. The one criterion—the solid ground of all, that which gives to business its honor and all attained of worthy success—the one tie upon which civil society rests, by which it is held together, is the full recognition of the value and the strict adherence to moral obligation. Into this one all other obligations merge.

ABSTRACTS.

THE PROOFS OF PROGRESS.

GEORGE M. STERNBERG,* M.D., LL. D., Surgeon-General United States Army.

The great obstacle to the advancement of medical science in the past has been respect for authority and the acceptance of the theories and supposed facts without submitting them to the test of experimental verification.

The humoral pathology which Galen (born A.D. 130) developed from the previous teachings of Hippocrates controlled medical thought and influenced medical practice for 1500 years. But we have been emancipated from the trammels of theory and superstition, and the medicine of to-day is largely based upon exact observation and experimental demonstration. In other words, we may now properly speak of medical science, for, while our knowledge in many directions is far from being complete, it is founded upon a scientific basis of observation and experiment and is being rapidly extended by scientific methods.

The unthinking and unscientific are very ready to believe that not knowing is due to ignorance on the part of the

*Extracts from an address delivered at the Georgetown Medical College, September 1, 1895.—From the Med. Rec.

individual, when in reality it is the brief statement by a well-informed man that the matter referred to has not been determined, and that no one can give the desired information. Under the same circumstances an ignoramus or a charlatan, instead of confessing ignorance, would perhaps gain great credit by a positive assertion with reference to a matter of which he could not possibly know anything. But science teaches that a confession of ignorance is the first step toward the attainment of knowledge. When the anxious mother says: "Doctor, is it diphtheria?" and receives the answer, "I don't know; there is a somewhat suspicious deposit upon the tonsils, and I will at once make a microscopical examination and a culture which will enable me to determine the matter within twenty-four hours," she will probably not be as well satisfied with her medical attendant when she receives the assurance after such an examination, that "it is not diphtheria," as she would have been with the non-scientific doctor, who claims to recognize diphtheria at a glance, announces his diagnosis at once, and "cures" the patient within a day or two. The latter has earned the mother's lasting gratitude, and she will not fail to recommend him to her friends as competent to cure any ailment to which humanity is liable. But our scientific doctor will make his way in the end. He will enjoy the confidence of his fellow-practitioners, and his patients will learn after a time that when he says he knows a certain thing he really knows it, and when he says he don't know, he will do his best to find out, if the question can be solved by reference to medical works in his library, or by an experimental investigation which it is practicable for him to make personally, or which can be made for him in a laboratory devoted to scientific research. He does not make a snap judgment, but waits until all the evidence is in. It is evident that the opinion of a man of this type is of value. His diagnosis, his prognosis, and his advice as to treatment are based upon a careful investigation of the case in hand, a full knowledge of the literature relating to similar cases, and a precise appreciation of the indications to be met by the treatment prescribed.

The conservatism which makes the scientific physician willing to confess ignorance is a very different conservatism from that of the pretentious charlatan and quack, who gives an emphatic denial to facts that are well established upon evidence with which he is not familiar, or which his intellect is not capable of appreciating. I have protested against calling the graduates of our leading medical colleges "old-school" doctors, but it must be admitted that there are still some very old-school doctors among the former graduates of regular medical colleges. In the ranks of the medical profession, as elsewhere, there are men who have been left behind in the rapid development of our knowledge, and who protest against the acceptance of facts which have been established by the most unimpeachable experimental evidence. By such protest they simply reveal their own ignorance. But as their opinions are often stated in good and forcible English, other persons, equally ignorant of the evidence, frequently accept them, or quote the old saying—"When doctors disagree, who shall decide?"

As examples of the conservatism of ignorance I submit the following quotations from two recently published papers, having the names of regular graduates in medicine attached to them. In a report to a State Medical Society, signed by a reputable physician, among other conclusions formulated I find the following:

(2.) "That the etiology of infectious diseases is as yet *sub judice*, and that therapeutic methods based upon the assumption that infectious diseases are caused by specific micro-organisms are unscientific."

Another medical writer concludes a popular magazine article as follows:

"We are brought, therefore, to the conclusion inevitably: The germ theory is an assumption of causes, of the existence of which we have no evidence, to account for effects which they by no means explain."

The training which the medical student of the present day receives in the laboratory is essential for other reasons than because of the scientific spirit, which is developed by personal verification of the facts which are recorded in

his text-books of chemistry, histology, bacteriology, etc. Not only does this personal verification impress the facts upon his memory, but he obtains that technical skill in the use of instruments and methods which can only be acquired by practice. In the chemical laboratory he learns to detect poisons, to determine the nature of impurities in water or air, to examine urine, etc. His practical course in histology makes him familiar with the use of the microscope and with the minute anatomy of healthy tissues. In the pathological laboratory he learns to recognize the results of different morbid processes and the presence of parasitic micro-organisms in the blood or tissues, to distinguish between malignant and innocent growths, etc. By cultivating the principal pathogenic bacteria and examining them under the microscope, after treatment with various staining agents, he becomes familiar with the biological and morphological characters and is able to recognize them wherever they may be encountered. In short, he obtains a practical knowledge of many things, which it is essential for him to know in order that he may be a skilful physician. The knowledge to be obtained from books, which enables the student to pass a creditable examination, does not make him a chemist, a pathologist, a skilful diagnostician, a surgeon or a physician any more than the knowledge to be obtained by reading books on agriculture makes a man a farmer, or than the study of books on navigation would enable a man without practical experience to take command of a trans-Atlantic steamer. It is in recognition of this fact that the Medical Faculty of the University of Georgetown has, as already stated, decided to extend the hours of instruction "so that more time may be given to practical work in laboratories and hospitals." Every physician of experience will approve of this decision. It is true that but few of the prominent physicians of the present day enjoyed such advantages as it is proposed to give to their successors. It is also true that a majority of these prominent physicians were very imperfectly prepared for the duties and responsibilities of a general practitioner when they received their medical degree. This fact has long been recognized within the ranks of the profession, and it is for this reason that hospital appointments have been so eagerly sought by those having a proper professional ambition. In the hospital the young doctor learns to apply his knowledge and to meet emergencies with composure and professional skill. His books have taught him what to look for, what to listen for, and what to feel for, but practice alone can give him the trained eye, the trained ear, and the *tactus eruditus* of the accomplished physician.

It is in the laboratory that the student acquires deftness in delicate manipulations required in his chemical, histological and bacteriological studies; here he learns to measure and weigh with accuracy, to appreciate the slight differences in color-reaction, in form or in structure, upon which he must often depend for the recognition of toxic agents, pathogenic germs, or abnormal growths; his eye becomes trained to recognize the malarial plasmodium, the tubercle bacillus, and other micro-organisms, which are only revealed to us by the highest powers of the microscope, under proper illumination, and in skilfully mounted preparations; and it is here that conditions are most favorable for the development of that spirit of doubt and inquiry which is so essential for the progress of scientific medicine. Where there is no doubt there will be no investigation. The farmer who accepts the traditional belief that certain seed must be planted in the light of the moon in order to obtain the best results, would consider it a waste of time to make a comparative experiment. But it is by means of comparative experiments that we arrive at definite conclusions in the laboratory, and the great diversity of opinions with reference to the curative action of drugs is largely due to a failure to apply the same methods in practice. This failure has been partly due to want of appreciation of the necessity for a control-experiment in judging of the results supposed to follow a certain course of treatment, and partly to the difficulty of making such a control-experiment in clinical medicine. The unscientific mind jumps at conclusions that are entirely unjustified by the facts. The warts upon the child's hand are

rubbed with a piece of meat which is thrown over the left shoulder, etc., and they subsequently disappear; a horse-chestnut or a potato is carried in the pocket for years and the individual does not suffer from rheumatism during the entire time. The child has a high fever at bed-time, the mother gives it a sugar pill and the next morning the fever has entirely disappeared, and so on *ad infinitum*. *Post hoc ergo propter hoc!* But the man of science asks: What would have happened if the warts had not been rubbed with meat, or saliva, or whatever may have been the particular fetich employed? Would the man have had rheumatism if he had left the horse-chestnut on the tree or the potato in the ground? Would the child's fever have disappeared if the mother had failed to give it the sugar pill? To determine this a comparative experiment is evidently required. Take the case of the child for example. To determine whether the disappearance of the fever was in fact due to the administration of the sugar pill we should have another exactly similar case—a child of the same age, under similar conditions and suffering from an elevation of temperature due to the same cause. One child should have the pill and the other should have nothing. Even then the result would not be conclusive. Science demands that the experiment should be repeated several times. There are so many chances that the conditions may not, after all, have been exactly identical. No truly scientific man would venture to announce a fact as established upon the basis of a single successful experiment. And, having in view the fallability of human judgment, the tendency to draw conclusions favorable to the prejudices or desires of the individual, and the frequency with which erroneous conclusions are published upon what appears to be a substantial experimental basis, science demands verification of reported results by two or more independent investigators before finally accepting these results as demonstrated facts. All this is so far away from the ordinary methods of arriving at conclusions, that the conservatism of the scientific physician meets with very little sympathy on the part of the general public. The man with a horse-chestnut in his pocket is not only convinced by his individual experience that this is a sovereign cure for rheumatism, but he is apt to resent your non-acceptance of his experiment as conclusive. We, on the other hand, know that medical literature abounds in instances of the ultimate failure of therapeutic agents and methods of treatment, which have for a time been lauded as specific, and have been endorsed by prominent physicians. We are therefore becoming more and more exacting in our demands as regards proof, and as a result medical science is making rapid progress. How great this progress has been is not fully appreciated by the non-medical public.

While we justly pride ourselves upon the rapid development of our knowledge during the last half of the present century, we must not forget that in some directions the foundations of scientific medicine were substantially laid by the illustrious physicians of the past. The time at my disposal will not permit me to give an extended review of the development of medical knowledge, but a brief reference to some of the more important events which have marked this progress will perhaps be useful, as showing the extent of the field and the advantages which the physician of to-day has over his predecessors.

Hippocrates and his illustrious successors, Celsus, Galen, and others, were certainly the peers of modern physicians in their powers of observation, and we are indebted to them for a mass of recorded facts relating to disease, which have been verified and added to by subsequent observers. But observation, in the absence of the instruments and methods of modern science, goes but a short distance in the direction of unveiling truth, and often leads to erroneous conclusions. Observation led the ancient philosophers to believe that the sun goes around the earth, and that water and air are elements. The experimental methods of modern science have revealed to us the constant presence of three elementary gases in the atmosphere, one of which is also a constituent of water, while one—argon—has only just been revealed to us by the researches of Professor Ramsey and Lord Reyleigh. One of the first lessons to be learned by the student of medicine is

not to trust implicitly to the evidences of his senses. This is the fundamental error of ignorant persons, and the foundation of demonology and superstitions of all kinds. The eye tells us that water from the well is perfectly pure, but the microscope shows us that it swarms with living organisms. The touch tells us that the patient has a high fever, but the clinical thermometer says no—the sensation received was due to the comparatively low temperature of our own hand at the time of making the observation, etc.

The anatomical knowledge of "the father of medicine" was very imperfect, because it was not obtained by the dissection of the human body. The Greek physicians, Herophilus and Erasistratus, of the Alexandrian school of medicine, who lived about 300 B. C., are believed to have been the first to study anatomy in this way, and from that time our knowledge in this essential department of medicine has steadily increased, until at present it is perhaps more nearly complete than in any other branch. The medical student of to-day is expected not only to acquire an accurate knowledge of anatomy in the dissecting room, but he must study the minute anatomy of the tissues by means of the microscope and the methods of investigation, which he will learn in the histological laboratory. He is also expected to have at least an outline knowledge of comparative anatomy, a branch of scientific research which dates back to the time of Aristotle (384 B. C.) and which has been greatly developed during the present century. Our knowledge of minute anatomy has been largely acquired during the past sixty years, as a result of the improvements in the compound microscope made about 1830. The perfecting of this invaluable instrument of research has also led to vast additions to our knowledge in the department of general biology, of which it is important that the medical student should possess at least an outline. A knowledge of the structure and development of lower organisms is justly regarded as a proper introduction to the study of human anatomy and physiology. Embryology, a branch of science which may also be said to have had its birth in the present century, must not be neglected by the student of medicine. It is true that Galen made observations upon the development of the incubated egg, and that Harvey, in the seventeenth century, made some important observations in the same line of investigation, but the minute and accurate knowledge of the present day depends upon the comparatively recent improvements in the compound microscope just referred to.

Progress in physiology, as in other branches of medical science, has resulted from the application of the experimental method to the problems to be solved. Galen made an important addition to human knowledge when he demonstrated that urine is secreted by the kidneys, a fact which, apparent as it seems to us to be, had not previously been recognized. It was nearly fifteen hundred years later that Harvey (1628) demonstrated the circulation of the blood, a discovery which is justly considered one of the most notable events in the history of medicine. The subsequent explanation of the process of respiration by Lavosier (1783), the experiments upon gastric digestion by Beaumont (1834), and the discovery of the function of the vasomotor nervous system by Claude Bernard, opened the way to a fertile field of research which is still being vigorously prosecuted in physiological laboratories; and the results attained constitute an essential part of the medical education. The progress of our knowledge of physiology has necessarily been secondary to the advancement of chemistry. Indeed, physics and chemistry constitute the foundation of medical science. We, therefore, place Priestley's discovery of oxygen (1783) among the epoch-making events in the history of medicine. It is due to chemistry that we are able to use the active principles of various drugs of demonstrated value, instead of the crude material—leaf, root, or bark; and the chemists have recently made many valuable additions to the list of approved therapeutic agents—principally from the series of coal-tar products.

The importance of carefully studying the results of morbid processes in the post-mortem room and in the pathological laboratory is now generally recognized, and the medical student will find

that since Morgagai (1682–1771) led the way in the study of morbid anatomy, an enormous amount of work has been done in this field of investigation. He will be required to make himself familiar not only with the facts developed, but with the methods of research and the microscopical and gross appearances of tissues, which have undergone the changes due to disease. Important as these studies are, the results obtained, from a practical point of view, are eclipsed by the brilliant discoveries which have been made during the past twenty years with reference to the etiology of infectious diseases, which to a considerable extent have been prosecuted in laboratories devoted to pathological research. These discoveries, like others heretofore referred to, depend primarily upon the improvements which have been made in the compound microscope, especially in high power objectives and means of illumination; and upon methods of research devised by the pioneers in this field of investigation, among whom the names of the French chemist Pasteur, and the German physician Koch are pre-eminent.

The development of our knowledge relating to the bacteria dates from the controversy relating to spontaneous generation, which was finally settled by the experimental demonstration made by Pasteur (1860), that no development of micro-organisms occurs in organic infusions which have been sterilized by boiling; and that fermentation and putrefaction depend upon the introduction of living germs into such infusions. The distinguished French physician Davaine first demonstrated the etiological relation of a micro-organism of this class to a specific infectious disease. The anthrax bacillus had been seen in the blood of animals dying from this disease by Pollender in 1849, and by Davaine himself in 1851, but it was not until 1863 that the last-named observer felt justified in asserting, as a result of inoculation-experiments, that the bacillus was the essential etiological factor in the production of anthrax.

In 1873 the German physician Obermeyer discovered the spirillum of relapsing fever in the blood of patients suffering from that disease. The typhoid bacillus was discovered by Eberth, and independently by Koch in 1880. The same year the present speaker discovered the pathogenic micrococcus, which is now recognized as the cause of croupous pneumonia. In 1882 Koch published his discovery of the tubercle bacillus. The glanders bacillus was discovered by Loeffler and Shutz in 1882; the bacillus of diphtheria by Loeffler in 1884; the bacillus of tetanus by Nicolaier in the same year. It was also in this eventful year that Koch published the discovery of the cholera spirillum. Since these important discoveries our knowledge of the pathogenic bacteria has rapidly increased, and it is now demonstrated that erysipelas, septicæmia, puerperal fever, wound infections, boils and abscesses, peritonitis, pleurisy, etc., are due to general or local infection with germs of this class.

Evidently the medical student of the present day must be made familiar with these recent additions to our knowledge of disease, and his acquaintance with these microscopic foes of the human race should be of that practical character which can only be obtained in the laboratory.

I have already occupied so much time that I can refer but briefly to the advancement in clinical medicine, which depends largely upon additions to our knowledge already referred to. The use of the stethoscope, the clinical thermometer, the laryngoscope, the ophthalmoscope, and other aids to diagnosis has introduced certainty in place of uncertainty, science in place of guesswork. Our knowledge of the pathogenic bacteria tells us not only where to find them, but how to destroy them when they are accessible to the action of physical or chemical agents. This knowledge has undoubtedly resulted in the saving of thousands of valuable lives. This has been accomplished by means of antiseptic or aseptic methods in surgical and obstetrical practice, and by the intelligent use of disinfectants for the destruction of infectious material, wherever it may be found. As a result of such procedures we have during recent years escaped any devastating epidemic of cholera or yellow fever, although the first-mentioned disease has twice been introduced into the harbor of our principal seaport, and yellow fever

prevails annually in the cities of Havana and Vera Cruz, with which we have close commercial relations.

The medical student is expected to prepare himself for continuing the work of his predecessors in preventive medicine, although this work has a constant tendency to diminish the demand for his services. To the credit of our profession be it said that this selfish point of view has never controlled its action, and it is largely to the efforts of physicians that existing laws and regulations have been enacted for the prevention of the extension of infectious diseases, the maintenance of a pure water supply for towns and cities, and general sanitary supervision exercised by local and State boards of health.

The most notable recent additions to our therapeutic resources are the antitoxins of diphtheria and of tetanus, and the use of thyroid extract for the cure of myxœdema. But I cannot dwell upon the possibilities in the way of specific medication, which are suggested by these recent achievements of scientific medicine. Certainly I have said enough to indicate to the young man who contemplates entering upon the study of medicine, that his best energies will be needed to master all the important details in the various branches to which reference has been made; and to justify the Medical Faculty of the University of Georgetown in extending the hours for instruction and in requiring that students shall take the practical laboratory courses, which have been arranged for, as announced in the recent "Circular of Information" already referred to.

Having attempted to give you some idea of the present status of scientific medicine, I desire briefly to call your attention to certain matters which are extremely discouraging for the truly scientific physician, although he seldom refers to them, and, perhaps wisely, trusts to time and the diffusion of knowledge to remedy the evils to which I shall refer.

Hand in hand with the progress of medical science we see an army of pseudo-scientific quacks who trade upon the imperfect knowledge of the masses, and by plausibly written advertisements convince many, even of the educated classes, that their particular method of treatment is based upon the latest scientific discoveries. A Priestley discovers oxygen; the physiologists show that this gas is essential to life, and that the maintenance of a full degree of vital activity depends upon the possession of healthy lungs of ample capacity and the respiration of pure air; the scientific physician discovers defects in the respiratory apparatus, and under certain circumstances prescribes oxygen for the relief of symptoms resulting from a deficient supply of this life-sustaining gas. But the pseudo-scientist extols oxygen as a cure-all for pulmonary complaints, or invents an apparatus, which may be held in the hand or carried in the pocket, by which oxygen will be absorbed in some mysterious way, and without difficulty obtains numerous certificates as to the marvellous cures affected by his method. A Franklin draws lightning from the clouds; a Galvani shows that an electrical current may be developed by the contact of metals and that such a current causes muscular contraction; and innumerable patient investigators add to our knowledge of electricity. The scientific physician avails himself of this potent agent for the treatment of certain ailments, in which it appears to be indicated but admits that he meets with many disappointments in his clinical experiments. The pseudo-scientific quack writes, or has written, advertisements in which fact and fiction are so commingled that even educated persons may be deceived, and having aroused interest in the alleged therapeutic value of this mysterious agent offers his electric belt, or finger-ring made of two metals, or pocket battery, as a sure cure for certain specified ailments; or, if less modest and more certain of the credulity of the public, as a cure for all of the diseases to which man is subject. Again, a Pasteur proves that the disease of sheep and cattle known as anthrax is due to a microscopic organism found in the blood; an Obermeyer discovers a different micro-organism in the blood of relapsing fever patients, and numerous patient workers in laboratories rapidly add to our knowledge of pathogenic bacteria. Then comes the man with the microbe-killer. He tells you that all

diseases are due to germs in the blood and that his fluid kills them without fail. Science has demonstrated that comparatively few of the infectious diseases of man are due to the presence of pathogenic bacteria in the blood, and that the microbe-killer has but little germicidal value; but a credulous public accepts the interesting statements which appear to have a scientific basis, and swallows the microbe-killer with impunity, if not with benefit. And so it goes, science establishes the value of thyroid extract for the cure of myxœdema, and immediately the public are called upon to swallow extracts of brain for cerebral troubles; of heart, for cardiac diseases, etc. Even the Chinese pulse-doctors obtain a large *clientele* on the Pacific coast. Their solemn looks and pretentious claims impose upon the ignorant, and it is said that educated people not infrequently consult them. It is true that in China, as elsewhere, there are two classes of physicians. Those who are educated and who are familiar with the medical classics of their country, and the itinerant quacks, who are not only ignorant but unprincipled. No doubt, the regular practitioner in China believes in his own pseudo-science. According to a recent author,* "the learned Chinese doctor is not ignorant in the sense that he has not studied, as from early youth he has been subjected to a degree of cramming and of learning by rote, such as would discourage and wear out the less patient and less toiling Caucasian. He has been obliged to learn stacks of sacred precepts taken from their most ancient sages; and the admixture of intricate and bewildering astronomy, meteorological signs, and endless physical complications of concurrent signs, appearances, and detached disturbances, that he has been compelled to learn by heart, is simply appalling. Anatomy and physiology cut no figure in these studies and they are considered wholly unnecessary, as disease is a matter depending on good or bad vapors, and is either of divine or diabolical origin. In spite of their most elaborate treatises upon the pulse, from which they profess to be able to perform the most skillful diagnosis, they are even unacquainted with the existence of the circulation."

The time at my disposal will only admit of a brief reference to the Chinese theories relating to disease and its treatment. As was the custom among the more enlightened Occidental nations, until a comparatively recent period, their prescriptions often contain twenty or more ingredients, apparently given with a vague idea that one out of the number may prove to be the right remedy. These ingredients are obtained from all imaginable sources and include all kinds of nastiness, in the way of excretions, desiccated animal tissues, etc. With them the color of a medicine is an essential character; red medicines being suitable for diseases of the heart; white, for pulmonary complaints; black, for diseases of the kidneys; green, for those of the liver; and yellow, for those of the stomach. In the use of remedies from the vegetable kingdom the leaves and branches are most appropriate for diseases of the extremities, the bark should be used for skin diseases, the pith for derangements of internal parts of the body, etc.

In conclusion, I desire to emphasize the fact that learning does not enable a man to distinguish between science and pseudo-science. The learned disciples of Confucius in the Orient, and classical scholars of the pre-scientific epoch in Occidental countries, formerly failed to distinguish between the fact of astronomy and the fancies of astrology. And, at the present day, eminence as a classical scholar, or as a theologian, or as a jurist, or as a metaphysician, in the absence of a knowledge of the methods and results of modern scientific investigation, does not enable a man to distinguish between science and pseudo-science in medical practice. This kind of learning is therefore not essential for the physician; but, as we insisted at the outset, he should not enter upon the study of medicine without having at least a thorough knowledge of his own language and of those branches of study pursued in the high schools of our large cities; we now add that a reading knowledge of the French and German will be very desirable, if he wishes to keep entirely *au courant* with the progress of medical science.

* Dr. P. C. Remondino, of San Diego, Cal.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

The Treatment of Cardiac Disease in Children.

The following rules are given by Perrier as to the management of this condition. In the first place, the child should be protected from cold, both because it depresses vitality and also because cold may cause internal congestions. Much fatigue is to be avoided and violent exercise forbidden. In the case of girls, particular attention is to be paid to these points at the approach of puberty. Secondly, the greatest care should be exercised as to diet, which should be simple, and consist largely of milk, eggs, easily digested soups, and tender, plainly cooked meats. Milk should be the drink for each meal. Thirdly, a life in the open air is very essential, and the climate should be changed by resorting to warm places in winter and cool ones in summer, for all persons with cardiac disease, particularly children, suffer from rapid changes of temperature. Cold sponging followed by dry rubbing is also of value. In the way of tonic treatment, one of the following prescriptions may be used alternately every five days:

Fowler's solution, 4 drachms.
Sig.—1 drop *t. i. d.*

And

Tincture of gentian, 1 ounce.
Sig.—1 teaspoonful *t. i. d.*

Often, too, a small glassful of malt extract is of service after meals.

Should there be much cardiac excitability, the following may be used in the dose of a teaspoonful twice a day:

Bromide of calcium, 2½ drachms.
Syrup of bitter orange, 4 ounces.

Should there be a tendency to constipation, a little magnesia may be given once or twice a week.

When there is well-marked rupture of compensation and the muscle is feeble, an absolute milk diet with rest in bed is advisable, the food being given at frequent intervals in small doses and diluted, if the urine is scanty, with lactose in water or by some alkaline water, such as Sels. Every two hours between the doses of food the following may be used with advantage:

℞ Tincture of digitalis, 5 to 10 drops;
Tincture of cinchona, 7 drachms;
Syrup of orange, 3 ounces.

A teaspoonful about half an hour after eating.

Every morning, to avoid straining, an enema may be given to move the bowels and to favor diuresis. Once in every two weeks a small blister may be placed over the heart with advantage.

Where the rupture of compensation has lasted for some time, the following may be ordered:

Caffeine, 4 to 7 grains;
Benzoate of sodium, 15 to 30 grains;
Syrup, 5 drachms;
Peppermint-water, 3 ounces.

Dessertspoonful *t. i. d.* for a child of from seven to twelve years.

Should there be cyanosis, it may be wise to use

Extract of convallaria majalis, 8 grains;
Syrup, 1 ounce;
Infusion of cinchona, 3 ounces.

A warm rectal injection should be ordered night and morning, and every eight or ten days a small blister applied to the præcordium. If there is a tendency to dropsy, hot-air baths may be used with caution, and if sudden cardiac oppression comes on, hypodermic injections of ether are to be employed.—*Maladies des Enfants, Therapeutic Gaz.*

THERAPEUTICS.

Europhen in the Treatment of Infected Wounds.

Europhen embodies certain properties which render it eminently adapted for the treatment of wounds of the extremities in which infection has taken place. According to the researches of Vulpius it is a powerful and reliable germicide exerting its action without any risk of toxic effects from absorption or local irritation, as is the case of the antiseptics commonly employed. Its lightness and bulkiness gives it a large covering power, while, owing to its adhesive quality, it forms a protective covering over wounds under which granulation rapidly progresses.

Another advantage—not to be underestimated—is its agreeable odor. A writer in the *Aesculapian*, April, 1895, expresses the opinion that, while europhen is almost a specific in the treatment of chancroid or syphilitic lesions, it is also an excellent dressing for infected wounds. He cites, among others, a case of badly infected wound of the hand, which after incision and irrigation with bichloride solution was packed with europhen gauze. On return of the patient three days after the dressings the inflammation was found to have subsided and the hand was in a fairly good condition. The treatment was continued and in ten days the patient was pronounced cured. The writer states that one of the best features of this treatment is the fact that the old offensive odor of iodoform was entirely done away with and in place of it was a very slight but very pleasant odor, resembling saffron, and save to near observers it was not noticeable at all. There was no dermatitis set up by the europhen, its whole action on the skin being very mild.

Completely confirmatory of this favorable testimony is the statement of the editor of the *Codex Medicus Philadelphiæ*, June, 1895, that the most striking results obtained from its use in his own experience, have been observed in the treatment of infected wounds of the hands. He further remarks that under the protective influence of europhen the foulest wounds become healthy and heal with surprising rapidity.

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ORIGINAL ARTICLES.

ŒSOPHAGOSTOMY FOR CICATRICIAL STRICTURE.

JOHN B. ROBERTS, M.D., PHILADELPHIA.

A boy, three and one-half years old, had swallowed, three months previous to my examining him in December, 1894, a solution of lye, which resulted in stricture of the œsophagus. It was said that a month before he came under my observation a rubber catheter could be passed through the contracted portion of the gullet. Upon examination I found the child greatly emaciated and very weak. I attempted to pass a flexible catheter down the œsophagus, but even the smallest was arrested by a constriction at its upper part. A whalebone filiform bougie, such as is used in urethral surgery, was without much difficulty, however, pushed downward and apparently passed through the contracted portion of the tube.

As the child was evidently starving to death, I determined to operate upon him. My first intention was to do a gastrotomy. The bougie passed down the œsophagus from the mouth would, I thought, have enabled me to draw a strong ligature from the stomach upward through the stricture. This would have been used to cut the stricture, as in Abbe's string-saw method. Careful examination of the patient, however, convinced me that the contraction was situated at a point sufficiently high to enable me to open the œsophagus below it. I accordingly performed œsophagotomy by making an incision along the anterior edge of the left sterno-mastoid muscle. I opened the œsophagus a little below the level of the cricoid cartilage and introduced a No. 12 soft rubber catheter into the stomach. The edges of the œsophageal wound were then stitched to the skin and the catheter allowed to remain for the introduction of liquid food into the stomach. There was some difficulty in identifying the œsophagus, which was necessarily small, because of the character of the lesion and the position of the thyroid gland. The left lobe of the thyroid gland extended to a higher level than the top of the larynx.

About half an inch above the first œsophageal incision I made a second opening into the œsophagus above the seat of constriction, and passed a rubber catheter upward into the mouth. Between these two openings the œsophagus walls were largely cicatricial. I endeavored to dilate or lay open this por-

tion of the tube, but was not successful. The point of a pair of forceps, introduced into what seemed the calibre of the œsophagus, when forced upward passed backward behind the wall of the pharynx. The child's condition was so bad that I did not care to prolong the etherization while I endeavored to lay open or cut away the cicatricial tissue, and I accordingly determined to postpone further operation until the child could be nourished for a few days through the catheter used to convey liquid food into the stomach. The catheter which had been introduced into the portion of the œsophagus above the stricture, and which protruded from the mouth, was withdrawn.

The child was fed on peptonized milk and stimulants in small quantities, but did not seem to rally well. On the tenth day a purpuric spot about four inches in diameter appeared upon the abdomen. This subcutaneous hemorrhage increased, the child became weaker, and died on the sixteenth day. It was impossible to keep the seat of operation aseptic, because food and mucus contaminated the wounded surfaces notwithstanding the greatest care on the part of the nurse. Frequent washing of the part with mild antiseptic solutions was therefore maintained. The post-mortem examination showed that about three inches of the œsophageal walls were almost entirely destroyed by suppuration. This rendered it difficult to preserve the connection between the upper and lower portions during removal of the specimen. The bodies of the vertebræ at this point were exposed, and the inter-vertebral cartilages loose. Some of them could have been easily removed by picking them out with forceps. The spaces between the loosened cartilages and the bones were filled with a dark foul-smelling pus. There was an area of consolidation about the root of the right lung, posteriorly; incision into this portion of the lung showed it to contain material similar in appearance, and of the same odor as that in the region of the wound.

The life of this child could without much doubt have been saved if a surgical operation had been undertaken at the time it was possible to introduce a catheter through the constricted portion of the œsophagus. The fact that I was still able to get below the seat of stricture at the time of operation makes me feel pretty confident that systematic dilation, either with or without an œsophageal opening made below the seat of stricture, would have permitted sufficient distention of the lumen of the tube to have permitted successful feeding.

The suppurative inflammation which occurred in the posterior mediastinum was largely due, I presume, to the difficulty of keeping the wound aseptic, and to the somewhat extensive disturbance of parts which I made in identifying and incising the œsophagus at the bottom of the operative wound. This complication would almost certainly have been avoided if I had adhered to my original intention of opening the stomach and cutting the stricture by a string-saw. It seemed to me, however, that there was less risk to the patient in making an opening in the cervical region into the œsophagus, and cutting through the stricture by a string or other device. Curiously enough, however, after I had made the opening into the œsophagus, I could not get the filiform bougie to pass through the strictured tissue and appear in the calbre of the opened gullet. It is possible that the filiform bougie, which I supposed I had passed through the stricture into the stomach two days before the operation, did not go down the œsophagus. It may have perforated the wall at the stricture and entered the posterior mediastinum, being the real origin of the inflammation of the mediastinal tissues found at the post-mortem examination.

Pregnancy and Exophthalmic Goitre.

Signier (*Repertoire Universel d'Obstet. et de Gynec.*, June 25, 1895) describes a case where exophthalmic goitre began with a pregnancy, the symptoms ameliorating after delivery. He believes that the pregnancy was really the cause of the enlargement of the thyroid gland. Possibly the diminution in its size after parturition depended on some temporary condition in connection with the puerperium. Even so simple a cause as the necessary rest may explain the favorable change which, after all, may not prove permanent.

NOVEL METHOD FOR MAJOR OPERATIONS WITHIN THE NASAL CAVITIES.

CARL SEILER, M. D., PHILADELPHIA.

For a number of years past, in fact ever since the introduction of cocaine as a local anæsthetic in intra-nasal surgery, I have avoided as much as possible the employment of general anæsthesia as cumbersome and unpleasant to both the patient and the operator; and in the majority of cases requiring but slight surgical interference and the performance of the minor operations, such as galvano-cautery, removal of polypi or ecchondroses, extirpation of the pharyngeal tonsil, and even straightening of the nasal septum, cocaine properly applied for a sufficient length of time before the operation I have found to answer all purposes. This local anæsthesia has the inestimable advantage in these by no means simple or easily performed operations, of securing for the operator the co-operation of the patient by not rendering him unconscious, the patient thus being enabled to remain in the upright position, the usual one for examination, throughout the operation; can dispose easily and without inconvenience to the operator, of any flow of blood, so that the operation need not be interrupted by any slight hemorrhage; and, what is of even greater importance, the topographical position of the parts in relation to the body of the patient, to the operator, and to the source of illumination remain the same as in ordinary examination of the nasal cavities, the knowledge of which relative positions, by long practice, has become, so to speak, automatic on the part of the operator, so that they are not consciously thought of by him during the operative manipulations if unaltered.

In those cases, however, in which the major operations within the nasal and oral cavities, such as the removal of fibroid polypi in the post-nasal or naso-pharyngeal cavity, of sarcomatous tumors, or of benign tumors invading the adjacent cavities, of necrosed bone in the posterior-nasal chambers, the extractions of large rhinoliths or impacted and incrusted foreign bodies, etc., are necessary, cocaine or any other purely local anæsthetic is not applicable, because the site of operation cannot be reached with the cocaine solution, and because the extent of surface to be anæsthetized is either too extensive or altogether unknown to the operator before the operation, and general anæsthesia must of necessity be resorted to in order to keep the patient submissive and quiet, besides rendering the surgical procedure painless; under these circumstances it becomes necessary to place the patient in a recumbent position, which at once puts the operator at a disadvantage, because it, in the first place, alters the topographical relation of the parts to the operator, puts adequate illumination of the nasal cavities out of the question altogether, or makes it extremely difficult, and, what constitutes the greatest objection, allows the blood to flow into the larynx and pharynx unperceived by the operator, and in such quantities as to endanger the life of the patient by suffocation if he is placed in the usual position—either on his back or on his side. This latter difficulty is usually obviated by plugging the post-nasal cavity, prior to the administration of the general anæsthetic, if the operation is to be undertaken in either of the anterior nasal chambers, or by a preliminary tracheotomy and plugging of the superior laryngeal cavity, if the naso-pharyngeal cavity has to be invaded during the operation, thus making it much more tedious and inconvenient to both operator and patient in the first instance, and in the second increasing the risk to life to a very great extent.

For a number of years past I have adopted a method which obviates the difficulty of blood running in the larynx and pharynx, and so does away with the necessity of preliminary tracheotomy or

plugging of the posterior nares, and which has proved so efficient in a large number of instances that I feel justified in making public mention of it now that it has been thoroughly tested.

This method is very simple, and consists in placing the patient, after thorough anæsthesia, upon the operating table, in a ventral recumbent position, with the head projecting, face downward, over the edge of the table.

The head is supported in a horizontal position by the hand of an assistant, and by placing a bandage around the forehead, the loose ends of which are secured to a band around the waist of the patient, or better still to a rigid support above the head of the table. In this position the flow of blood occasioned by the operation finds vent through the nostrils and mouth, and none of it finds its way into the larynx.

Of course, the topographical relation of the parts to the position of the patient is an entirely different one from that we are accustomed to in the ordinary upright position, but not much more so than when the patient is in the prone dorsal as lateral position, and with a little practice on the part of the operator this difficulty is soon overcome.

In order to obtain sufficient illumination, an ordinary looking-glass or a concave reflector is placed upon the floor underneath the patient and secured in such a position that it will reflect light from any convenient source, a window or gas-jet, into the nasal cavities. As a rule, in such operations I depend upon the sense of touch rather than upon that of sight, but if it becomes *absolutely* necessary to see any particular portion of the nasal chambers, which *can* be seen during the operation, I adopt the very simple expedient of lying upon my back under the table, which brings me again into the same relation to the patient's nasal cavities that I was in when he was sitting conscious on the examining chair, and thus the topographical relations are restored, under somewhat inconvenient circumstances it is true, to the normal and accustomed one's.

I have performed many of these *major* intranasal operations with the patient in the position described, and have been greatly pleased with not only the freedom of motion which it gives to the operator for his manipulations, but also with the ease of mind and freedom from anxiety, lest blood should choke the patient in spite of all precautions to prevent such an accident, which have to be instituted in the old method of the dorsal recumbent position, even with the head extending beyond the edge of the table and hanging down.

The Waste of Energy.

Every now and then some fool man writes to the papers to say that we are becoming a weak race; that the standard of height and measure of physical accomplishment are not what they were in the old days—whenever those were. The luxury of modern civilization and the substitution of mechanical for bodily energy are held accountable for this deplorable state of things. Of course it is useless to argue against them. No man who has grown accustomed to *paté de foie gras* is going back to sustain himself on gluten bread while his salary keeps up, and no man is going to pay half a dollar to a workman to fix up his last summer's straw hat in two days when he can have the job done in ten minutes for half the money on an electrical machine.

But everybody must have noticed that with the decrease of occasion for manual labor there is a compensating output of energy in other directions. Man is constitutionally compelled to use his muscles. He has lost the prehensile caudality that adorned his thousand times great-grandfather, because his pursuit of agriculture and small game took him out of the trees and gave him an ampler footing on the ground; but with this rather unimportant exception he is stronger, bigger, and better equipped than the relative with which Mr. Darwin has endowed him.

The fact that he has everything done for him by machinery, except his breathing and a part of his thinking, leaves him with a surplus of bodily vitality.

Why not employ this energy that is now so lavishly wasted? In old aristocratic societies it was against the unwritten law to do anything useful. A man might tire himself to death rowing, fishing, dancing, shooting, playing golf, and doing things like that, but if he sawed wood he was done for. These aristocratic conventions no longer obtain, except among the most gilded of the elect.—*Harper's Weekly.*

ACUTE COCAINE-POISONING.*

M. V. BALL, M. D., PHILADELPHIA.

In presenting this report of a case of acute cocaine-poisoning, I doubt whether I can offer anything new, and yet there are several interesting points to be noted.

The literature on cocaine intoxication, though widely scattered, is, however, quite extensive. Mattison, of Brooklyn, and Germain Sée, of Paris, have each reported, in 1892, two hundred and more cases of poisoning, with twenty deaths. Since then quite a number of deaths have been recorded in medical journals.

The dose at which fatal poisoning has occurred varied within marked limits. In five fatal cases reported by Manheim the quantity of the alkaloid taken was over 15 grains. In two cases reported by Mattison, death occurred after hypodermic injection of $\frac{2}{3}$ grain.

Symptoms of poisoning have set in when the drug was administered by the stomach, when thrown into urethra, nose, ear, rectum, or when injected under skin or into the gums; or when simply rubbed over the surface of the face.

Absorption is very rapid, and in some of the cases reported the operator barely had time to withdraw the needle of his syringe before symptoms of intoxication set in.

The symptoms described in each case differ greatly, and there are all stages, from slight incoherency in speech with dizziness and dilated pupils, to excited hallucinatory delirium, thready uncountable pulse, convulsive breathing, or sudden collapse, or marked tetanic spasms.

Cocaine-poisoning exhibits the symptoms of strychnine-poisoning in some cases, in others that of alcohol, and in some a mixture of both.

I will describe the case in question:

Mrs. C., aged thirty-five years, white, a sufferer for ten years past from rectal stricture, accustomed to use cocaine locally on pledget of cotton in the rectum, being tired of her existence resolved to end her life by swallowing 25 c.cm. (6 drachms) of 5 per cent. solution of cocaine, equal to about $1\frac{1}{4}$ grammes ($18\frac{1}{2}$ grains) of the alkaloid.

The dryness in the throat was speedily produced, and in attempting to get up from her couch to ring for the servant she felt dizzy and fell to the floor. A young medical student, living in the house, and summoned at once, found her in a raging delirium. She wanted to throw herself from the balcony. She talked loudly, incessantly and incoherently. She was restrained by physical means, and when the student endeavored to give her a hypodermic of morphine, she resisted, and would not allow him to do so; he pursuaded her to take the tablets by the mouth, and so $\frac{1}{3}$ grain was administered. It was about half an hour after that I saw the patient. She was held down on the bed by her friends, and was gesticulating wildly, yet was able to recognize me as soon as I entered the room, appealing to me for help. I suffered her to be released, when immediately rushing past me she made for the open window to fling herself out. This she was prevented from doing, remarking, as she was led back to her couch, that after all "she wanted to look pretty when she died."

Her pupils were widely dilated, the pulse hardly perceptible and very frequent. The tongue would be protruded spasmodically, and teeth gritted together in a tetanoid manner. She talked incessantly. In a few minutes I was able to gain control over her without using physical restraint; and, though she talked irrationally at times, her delirium was less marked, and she told me that she was not going to get over the effects, nor would she allow me to give her an antidote; in the next breath she would ask me to listen to her singing or recitation. Frequently looking at her hands they appeared dirty to her, and she would rub them. Her tongue was

*Read before Philadelphia County Medical Society, October 9, 1895.

much congested, bluish anæsthetic. Her throat was very dry; other parts of the body tested superficially gave no indication of anæsthesia.

Respirations were normal. Temperature normal. Pulse, when counted, was 140. She stated that she felt glorious, never so happy before. Wanted to drink champagne, and when it was brought to her, forgot that she asked for it. Delusions of persecutions were present to a slight degree, and her most intimate friend was accused of treachery and underhandedness. She was desirous of moving around, wanted to leave the house and visit a place she had not thought of for many years. Gradually a feeling of tiredness supervened, talk became less lively, bodily sensations were now complained of, and especially great thirst, which water or ice had no power to quench. Lemon and vinegar applied to lips was tasted, showing that sense of taste was not entirely absent.

Pulse still very frequent and small. Was able to administer black coffee and lukewarm water, and thus induce free emesis. At this time, which was two hours after the cocaine had been swallowed, the patient was resting quietly, with her pulse stronger, but still rapid. Thirst was extreme, and in attempting to go to bath-room, she found her legs almost useless. The urine was passed. Strychnine, grain $\frac{1}{30}$, was administered by mouth, and some champagne was given. Perspiration started on skin, and the former pallid condition of face changed to a slight glow. Four hours after the initial onset the patient was sleeping soundly, and the pulse went down to 100, but was much stronger. Consciousness entirely returned, but no recollection of time, and little of previous events, although she remembered when I came in. Next morning she was very weak, her body felt bruised, and her limbs heavy and almost useless. Feces and urine had been passed without trouble. No appetite. Tongue and throat still much parched, and thirst still present. Congestion of tongue was gone, and normal sensations had returned.

A history of a previous overdose was obtained. The alkaloid in dry state was taken by mistake, and an active delirium much worse than the one just recorded occurred. Morphine was administered in large quantities at the time.

Very few cases are on record of recovery from so large a dose as the one taken in this case, although in a case where 22 grains were given by mistake by the mouth, patient died almost immediately. Forty grains have been taken daily by persons habituated to its use. Recovery would probably not have occurred were it not that patient was under the influence of the drug more or less for some time past.

One of the earliest, possibly the first, case of cocaine-poisoning is recorded by H. Ploss, in the *Zeitschrift für Medicin, Chirurgie und Geburtshilfe*, vol. ii., 1863.

Nieman, who was the first to isolate the alkaloid and gave it the name it now bears, made known his discovery in 1859, but this fact was known to a certain apothecary, who was experimenting with cocoa leaves, and who, in 1863, thought he obtained a poison from them as fatal in its effects as strychnine. He took of this extract a considerable quantity with a view of ending his earthly existence, and while waiting for the drug to take effect, he joined some friends in a beer hall and indulged in a few mugs of beer; he then retired to his bed and fell into sleep. Some three and a half hours after he took the poison he awakened with severe thirst and dryness in mouth, dizziness in head, and in attempting to walk across the room his legs gave way. He was unconscious then of what occurred until the morning, but from the appearance of his room, he must have been rather active. In the morning he felt very weak, and still dry in mouth, and thirst.

In the cases of poisoning that I have been able to collect, frequency of pulse, dilatation of pupils, convulsive twitchings of face and general convulsions, respiratory muscle spasm, unconsciousness, excited delirium, suppression of urine, and cyanosis are the symptoms most common.

The delirium is to be distinguished from alcoholic delirium from the absence of frightful hallucinations. Hallucinations are rarely present. One, the so-called cocaine-bug, and which occurred in my patient, is believed by Erlenmeyer to be due to disseminated scotoma.

Spots of dirt are seen on white surfaces, as noted in this patient, the fingers seemed black and dirty.

LeGrain states that the alcoholic tremor is wanting, but it was distinctly present in our case. The thirst and dryness of throat is a distinguishing feature. Otherwise, without a history, they seem very much alike.

Moreno Y. Maiz (*Recherches Chemique et Physiologique sur l. Erythroxylon Coca*, 1868) states that the thoughts are not mixed up as in alcoholic intoxication. The phantasms are brilliant; there is a flow of wit. I have seen in an advanced case of general paresis a similar delirium—a desire to sing and recite, to move about, to express a feeling of happiness. An habitue of cocaine has expressed himself as desiring ten years with cocaine rather than 10,000 centuries without it. The element of grandeur and personal aggrandizement sometimes enters.

Dujardin-Beaumetz, in his *Dictionaire de Therapeutique Supplement*, 1895, states that the effects of cocaine in toxic doses in warm-blooded animals are similar to strychnine, but in *cold*-blood animals—the frog, for instance—no convulsions are produced.

It is a curare for the sensitive nerves, exciting the nerve trunks, and rendering the peripheral nerves analgesic.

Francois (*Arch. de Physiologie*, 1892, p. 562) finds it a paralyzing poison, not only on the sensitive fibres but also on the motor, and on the fibres of muscles as well as the protoplasm of cells.

The frequency of pulse is probably due to paralysis of the vagus; the phrenic nerve is likewise interfered with, causing the respiratory spasms and tetanic arrest in some cases.

In my case there was no interference with the urine. The urine is often suppressed; other secretions, as those of the mammary and sub-maxillary gland, have been noted as likewise affected by toxic doses.

Maurel thinks that death is due to destruction of leucocytes. Their dead bodies collecting in capillaries and forming embolic processes.

Reclus holds that thrombi form in veins, and when death occurs after an injection under the skin it is due to the penetration of a small vein.

This will hardly account for the deaths happening after the drug has been thrown into the urethra or when swallowed by the mouth.

As to treatment, I cannot offer anything suggestive. Morphine has been looked upon as antagonistic, and has been given in the majority of cases recorded where symptoms of collapse are present early, with tetanic convulsions and cyanosis. Nitrate of amyl is indicated.

Where heart's action is weak, stimulants, strychnine, hypodermatically, alcohol, ammonia, and ether have all been suggested and tried.

The early administration of $\frac{1}{3}$ grain morphine did probably influence the course in the case described, but recovery is often rapid without any treatment.

As the poison is eliminated rapidly by the urine and skin, the free action of these organs is desirable, especially as there is a tendency for them to be less active than usual.

While the dosage of cocaine cannot be said to have any well-defined limits, several clinicians, among them Hänel and Decker, believe that $\frac{1}{2}$ grain, hypodermatically, should be the maximum dose.

Abortion; Decidua Vera Intact.

Gottschalk (*Centralbl. f. Gynak.* No. 25, 1895) showed at the May meeting of the Berlin Obstetrical Society a second month's ovum spontaneously delivered with the decidua vera intact. The abortion followed a prolonged railway journey. The membranes assumed the form of the uterine cavity, including the cervix. It could plainly be seen, however, on examining the decidua vera, that the membrane in question ceased inferiorly at the level of the internal os. Keilmann was in error when he made out that the vera lined the canal of the cervix. The vera in Gottschalk's case certainly assumed the form of the cervix, but that was owing to a hæmorrhage in the fœtal membranes inferiorly, which caused them to bulge down as far as the os externum. The blood on clotting made a perfect cast of the cervical canal. The decidua vera, though shed entire, showed diffuse hæmorrhages all over its substance.

CHYLURIA.*

F. P. HENRY, M.D., PHILADELPHIA.

I am indebted to Dr. Charles W. Coburn for this specimen of chylous urine, which I have the honor to present to the Society. The patient who voided it is a Cuban, aged forty-five years, from whom thus far but a meagre clinical history has been obtained. He has passed urine, such as is contained in this bottle, for the past two months and uninterruptedly; that is to say, that at no time during the period mentioned has the urine presented a normal appearance. Although his appetite is good, he has lost twenty pounds during the last three months. These are about the only facts that I have been able to elicit concerning the man's present and previous condition.

You observe that the urine is absolutely opaque, and bears a sufficient resemblance to milk to render the term "galacturia," sometimes applied to such specimens, eminently appropriate. It has, however, a slightly pinkish tint, caused by the presence of a few blood corpuscles, and at the bottom of the bottle there are several pink coagula. A surgeon, to whom I showed the specimen this morning, took it for a solution of creolin, and it certainly resembles it very closely. The clots to which I have just referred must, I think, have been formed in the urine after its discharge, for there is no history of attacks of dysuria, such as might be expected to be caused by them, had they traversed the urethra.

As is well known, chyluria is generally associated with the presence of the filaria sanguinis in the blood, and this parasite has also been found in the altered urine. In fact, it was first detected in chylous urine by Wucherer, and, later, by Lewis in the blood of patients affected with chyluria. The animals discovered by these observers were minute nematode worms, about 0.3 mm. in length. They were subsequently ascertained to be the embryos of a much larger parasite, which was first detected by Bancroft. This adult animal is from 8 to 10 c.cm. long, and has been found in lymphatic abscesses, lymphatic glandular swelling, lymph-scrotum, etc. A most valuable addition was made to the life history of the parasite by Dr. Patrick Manson, of Amoy, China, who proved that the mosquito plays the part of an intermediary in conveying it from man to man. In the first place, Manson discovered that the embryonic filariæ are detected with comparative ease in the blood of a patient who harbors them, provided such blood is withdrawn from the vessels of the surface during the night. At night the embryos swarm to the surface, while during the day they retire to the deeper vessels. Acting upon this knowledge, Manson exposed a patient affected with filariasis to the bites of mosquitoes and found the embryos in the bodies of these insects.

The mosquitoes, with the embryonic filariæ in their interior, seek water in which to deposit their eggs. This function accomplished, they perish; the embryonic filariæ are liberated, and through the medium of the water gain access to the human system. It is through the plugging of lymph vessels, especially those connected with the urinary tract, that the lymph gains access to the urine. Post-mortem examination of those who have died from filariasis has revealed enormous distention of the thoracic duct and of the renal lymphatic vessels. In one case, that of Havelburg, there was found in the left hypogastric region a large sac with chylous contents, which communicated with the bladder.

There is, undoubtedly, a non-parasitic form of chyluria, caused by lymphatic obstruction from tumors or other causes interfering with the circulation of lymph. The commonest cause of such interference, however, is the parasite in question.

It is only fair to add that there are those who deny that the milky appear-

*Read before Philadelphia Co. Med. Soc., October 9, 1895.

ance of the urine in cases of chyluria is due to its admixture with lymph. The arguments in favor of this view are the following: In the first place, chylous urine does not contain sugar, which is a constant ingredient of lymph. Secondly, the quantity of fat in chylous urine is much greater than that contained in lymph; whereas, if derived from the latter source, it should be much less, since the urine normally is free from fat.

I have been unable to detect the filaria in this specimen. As regards the blood of the patient from whom it was obtained, I have thus far seen but one specimen, and it also was destitute of filariæ. The absence of the parasite cannot, however, be regarded as certain until after repeated and futile examinations of the blood. These, it is scarcely necessary to say, should be made at night—*i. e.*, at the time when the parasite comes to the surface.

Dr. Leffmann very kindly examined this specimen chemically, and, although he has not completed his study of it, I have his permission to announce the following results of his analysis:

The high speed centrifugal machine did not separate the fat. The latter was extracted by ether, and the ethereal solution on evaporation left a greasy deposit.

Trommer's test and the phenyl-hydrazine test gave no definite sugar reaction. Treating with a little acetic acid and heating in water-bath caused all suspended matter to collect in such a way as to permit of complete filtration. The filtered liquid was pale yellow, and perfectly clear. It was to the latter that the sugar-tests were applied. It is probable, from the readiness with which the suspended fat is entangled on heating with acetic acid, that a coagulable proteid is present.

COMMUNICATIONS.

LIFE INSURANCE.*

DANIEL JORDAN, ESQ., New Brunswick.

The plan I propose to adopt will be, in the first place, to endeavor to show what life insurance has been held by the authorities to be; what are its principles; the risk insured, and the effect of concealment and misrepresentation in applications for such insurance. In connection with these branches, as relating strictly to life insurance, I will briefly consider the question of insurance against accidents, as far as the proximate and remote causes of death are concerned, and omit entirely all such questions as the interest of an insurer in the life of the insured; who has authority to effect this insurance; and the consequences of mistakes in these respects, all of which are matters of the greatest importance, when considering the general subject of life insurance, and require to be most carefully attended to, as well by persons effecting insurance as by the company insuring, and would of themselves afford more than ample material for a single paper on the subject.

Before entering upon the consideration of the subject, however, I intend viewing the questions as they have been decided by the English courts and jurists rather than by the jurists and courts of the United States, for the simple reason that I am more familiar with the former decisions than I am with the latter, and not because they are any better or higher authority for a legal standpoint. Indeed it may be, and no doubt is, the case, that many, if not all, of these questions have been decided in a similar way by the courts in both countries.

*Read before the Medico-Legal Society, February 12, 1895.—*Med. Examiner*, April 1895.

Life insurance has been defined by Baron Parke, one of the most eminent of English jurists, to be "a mere contract to pay a certain sum of money on the death of a person, in consideration of the payment of a certain premium (or annuity as he calls it) for his life, the amount of the premium being calculated in the first instance according to the probable duration of the life, and when once fixed it is constant and invariable. The stipulated amount of the premium is to be uniformly paid on the one side, and the sum to be paid in the event of the death is always (except where bonuses have been given by prosperous offices) the same on the other.

Concise as this definition is, and it is the most simple and clearest I have been able to discover in the English authorities, and is the one most generally cited in our text-books on this subject, yet I was very strongly impressed with, and, I will admit, rather prefer that given by a learned and able American jurist, Mr. Justice Gray, of the Supreme Court of Massachusetts, which is as follows: "A contract of insurance is an agreement by which one party for a consideration (which is usually paid in money, either in one sum or at different times during the continuance of the risk) promises to make a certain payment of money upon the destruction or injury of something in which the other party has an interest. In fire insurance and marine insurance the thing injured is property; in life or accident insurance it is the life or health of a person. In either case neither the times and amounts of payments by the assured, nor the modes of estimating or securing the payment of the sum to be paid by the insurers affect the question whether the agreement between them is a contract of insurance. All that is requisite to institute such a contract is the payment of the consideration by the one and the promise of the other to pay the amount of the insurance upon the happening of injury to the subject by a contingency contemplated in the contract." Now while I say I prefer this definition to the one previously quoted, still I must express the opinion that the concluding portion thereof in which Judge Gray says "all that is requisite to constitute such a contract is the payment of the consideration by the one, and the promise of the other to pay the amount of insurance, etc.," is, in my opinion, rather inconsiderately expressed, and might indeed be very misleading, unless the whole clause is governed by the latter portion, in which he says "upon the happening of injury . . . by a contingency contemplated in the contract," and unless we are to infer from that expression that he implies the existence of that most indispensable ingredient in all contracts, and, if possible, more particularly in contracts of life insurance the uberrimoe fidei spoken of by all writers on this subject. For it is a proposition of law in connection with the subject that has been too well established by almost innumerable authorities to be successfully controverted for a single moment, that where this "utmost good faith" is wanting, or any material concealment or suppression of material facts exists, or an intention to deceive or misrepresent is shown to have occurred in applications for life insurance, that policies thus obtained will be declared void, and such will be the inevitable irrespective of the length of time the premiums may have been regularly paid by the insured and regularly accepted by the company, unless, of course, the latter has permitted such payments to be made and has received them, having the knowledge of such concealment, etc. Should such be the case, the company would have stopped itself from afterward setting up such fact as a defense to an action on its policy, and such acts would amount in law to a waiver by the company, for it would then be seeking to take advantage of its own wrong, which the law will not permit.

It might be as well here, and in connection with what I have just stated, to diverge a little from the precise course I have laid out, and examine for a few moments some of the cases bearing upon the questions of "Representations" and "Declarations," to see how extremely particular the courts are and always have been as to the *bona fides* requisite in contracts of this description. A proposal was made in one case to a company by a person for insurance upon his life, and the following questions, *inter alia*, were asked him: "Has a proposal ever been made on your life at any

other office or offices? If so, when? Was it accepted at the ordinary premium, or at an increased premium, or declined?" The assured answered, "Insured now in two offices for £16,000 at the ordinary rates. Policies effected last year." These answers were true, but the assured had failed to inform the company of the fact that his application had been refused by other offices, and although this company had accepted his proposal and had not, until sometime afterward, ascertained that the life of the assured had been declined by these other companies, the Court of Chancery Division held there had been a material concealment by the assured in not stating the fact of such previous refusals, and that the company was entitled to have the contract set aside. So particular are the courts on this subject, they will not leave it to the applicants for life insurance themselves to determine whether or not the fact or facts that have been concealed or misrepresented is or are material and necessary to be made known to the company, but they have declared that such facts must be disclosed to the company, as they are entitled to know everything that may govern them in accepting or declining any risk. And where the suppression or false representation of facts is made, or occurs in answer to parol inquiries only, where the policy in its terms is declared to be void, should false answers be given to *written inquiries*, yet the assured cannot, under the pretense that he was not aware that such proviso extended to other than such latter inquiries, shield himself from answering truly all inquiries made of him by the company. Indeed it is not necessary to establish a false representation to show that the same was actually spoken or written, but, as stated by Malins, Vice-Chancellor, "in order to tell a falsehood it is not always necessary to use express words; it may be done by implication." In that case a similar question had been asked by the company as to whether there had been any previous refusal of the party's life by any company, and, if so, to name the office. There had, in fact, been such refusals, but negotiations were then pending with other offices, which, after the application to this company, had also resulted in refusals. The agent, through whom this party was seeking insurance with the company, wrote to the company stating he had been and was then corresponding with other offices in reference to this insurance, as the amount to be insured was very large, but he withheld from the company the fact that there had already been refusals in other offices and notwithstanding the company had granted the policy, the court decided that there had been such an intentional concealment of facts that the policy so granted was void. Courts have again gone still further and have decided it is not even necessary that the fact stated should have been untrue to the knowledge of the person applying for this insurance. Such was the decision of the Queen's Bench in the case of *Macdonald* vs. *The Law Union Fire and Life Insurance Company*, reported in *Law Reports, 9 Queen's Bench 328*. In this instance the plaintiff had effected an insurance with the defendants upon the life of a third party, to which policy the plaintiff himself was not a party. This policy contained a promise "that if the declaration under the hand of the assured delivered at the company's office as the basis, George III C. 48, S. 3, which enacts "that no greater sum shall be recovered from the insurers than the amount or value of the insured in such life," refers to the interest at the time of making the policy and not at the time of the insured's death.

There is another branch of this subject somewhat connected with that of "Representation," to which I would like to refer for a short time, as it is one in which the medical members of the society are more particularly concerned in a professional way than are the legal members; it is in reference to the granting or signing certificates of health or medical examinations of applicants for life insurance. Some medical practitioners appear to be of the opinion that if they can state that such applicant is in what is called "good health" at the time he seeks insurance, that that is all that is required, and all the insurers need to know, and that it does not make any difference what may have been the state of his health previous to that time, or what his habits may have been. Let me here endeavor to disabuse their minds of such an erroneous idea, and

state to them that such is not all the law requires by any means, but it is much more particular in its requirements in this respect, and it becomes a matter of the greatest importance and moment, both to the practitioner himself, in a professional point of view, and to the applicant from a pecuniary standpoint, that a much more particular examination of such applicants should be held, and the results thereof all fully and unequivocally stated in these certificates or reports. It is important to the practitioner, as the repetition of such improper conduct must result in the loss of confidence, which must mean to him professional death; and to the insured or his representatives, it means pecuniary loss, as the provision which was sought to be thereby made may be entirely cut off, and the objects of his intended bounty may be wholly deprived of the benefits that should have been derived from his forethought in insuring. It is true that in a great many cases the medical examiner, for the first time in his professional practice, examines such applicants when they are referred to him by the insurance office with whom they seek to insure, and consequently in a greater or lesser degree they must be governed very largely, in the report they subsequently made to the office, by the answers given and representations then made to them by these persons; but would it not be wise for any and all such practitioners to decline at once to undertake the responsibility of such examination and reporting thereupon, without having had a previous consultation with the regular medical attendant of such applicant? The objection that might be raised to this proposition, and which seems to me would fairly be raised, would be, why should the regular medical attendant be called upon by a company to consult (or report, I might almost say, for on his opinion the report of the company's examiner, whether favorable or unfavorable to the applicant, would no doubt largely depend) without some compensation or fee from those asking his services. Why should he run the risk of divulging professional secrets which might injure the reputation of, and lose to the practitioner it may be, a responsible and wealthy patient, and which report might or might not be acted upon by the insurance company afterward as suited their own convenience and affected their coffers. Still for all this, would it not be better for such applicants themselves and their families after them, if something such as I have suggested were done, for there might be cases where the medical examiner, through insufficient instructions from the office, or from oversight or thoughtlessness on his part, would neglect to examine such applicants as to all previous conditions of their health and habits, and the applicants themselves, through inadvertence or want of knowledge, might neglect or fail to disclose some most material fact, thinking it either unnecessary or too insignificant to mention even if it occurred to him at all, yet, who would be most thankful to his own attendant for having done so had he been referred to in the matter. I will repeat then, in order to emphasize more fully what I have already said, that the state of health of an applicant at the time of such examination only, does not always represent the whole risk insured by an office, for there are many cases where restoration, or rather apparent restoration, to health may only be of a most temporary character, to be speedily followed not only by serious and confirmed disease, but even indeed by death itself; and therefore the insurers are entitled to be informed most fully and unreservedly of everything relating to the previous, as well as to the present condition of each applicant's health, and this has been decided time and time again by the courts, both in England and America. The disease under which the party may have labored, or from which he may have suffered, may have been apparently the most trivial in its character, and not appeared at all likely to affect the risk, yet when we remember how the courts have decided, as mentioned in an earlier part of this paper, that it is not for the assured to judge and determine what is necessary to be disclosed, how very significant and important the most trivial and unimportant fact may become, when placed under the microscope of judicial investigation and inquiry, and such facts are always to be left to a jury to decide upon, and

in this inquiry they are to be guided not only by the medical opinions, but by their own common sense as well.

Having now introduced the subject of life insurance and showed the light in which it is viewed as regards its character as a contract, let us pass on to the consideration of some points connected with it, and which appear to be particularly relevant to the subject as we are dealing with it; and for convenience sake I will endeavor to do so in the following order, treating at times two or more of the branches together whenever it would appear more advisable to do so. The order I propose is the following:

1. Diseases tending to shorten life.
2. Capital punishment and suicide.
3. The state of mind of assured.
4. Secondary causes.
5. "Sole cause of death."
6. Habits.
7. Under influence of liquor at time of injury.
8. Fits.
9. Some general remarks.

The first of these divisions is, I think, quite intimately connected with the subject already mentioned as to the state of health of the assured at the time of his application for insurance, and as referred to in the passages on Representations and Declarations, also in my remarks on the duties of the medical examiner, and sufficiently so, I think, to justify me in next proceeding to consider it. It is not possible to annunciate any general rules for determining what diseases have, and what have not this tendency, as any variation or deviation from health might be so interpreted if a strict construction were to be put upon the terms, and who is there in fact, who has not the seeds of disease of some kind planted in his body, and which are there germinating and growing, and have been so ripening since the hour of his birth? The law, however, does not place this strict construction upon these words, but has placed a proper and reasonable representation upon their meaning, and considers them to apply to such diseases only as are in themselves regarded as of a serious nature, and, as a rule, whose tendency is to affect directly or indirectly the duration of a person's life who is affected with them. Again, it is not to be concluded that a disorder with which a person may be afflicted at the time of or before he effects an insurance on his life, "is a disorder tending to shorten life within the terms of some policies, from the mere fact that it eventually causes his death; if it be not a disorder of such a character as generally has such a tendency, for all disorders have such a tendency in a greater or less degree, and even sometimes the apparently most trifling, still if the general effect of such disorder is not to shorten human life, the mere fact of the applicant having been troubled therewith either before or at the time of his insuring, will not defect the policy, and the company will not be relieved from payment in the event of his death arising from such disorder. This point has been so determined. The judge (Chambre) charging the jury in this case said: "All disorders have more or less a tendency to shorten life, even the most trifling; as, for instance, corns may end in mortification; but that is not the meaning of the clause. If dyspepsia (which was the disorder with which the insured in this case was affected) were a disorder tending to shorten life within this exception, the lives of half the members of the profession of the law would be uninsurable." The courts will always place an equitable interpretation on such terms as these, for the insurers have no right to give a forced or strained construction to the words in their policies, or such as will give them an advantage of what must be regarded only as an accidental result, and which does not generally follow as a necessary consequence.

I will now come to the branch announced as "capital punishment," but which is included in policies, as a general rule, under the terms, "death by the hands of justice." In connection with this I will also consider the question of "suicide," or "death by his own hands." The first of these points came up for discussion before the House of Lords. There it appeared that a man had insured his life and had paid the premiums regularly for a number of years. After so doing he committed a felony, for which he was tried and executed. His representatives sought to recover the amount of the insurance on

his life from the company, and the Master of the Rolls, who had heard the case, declared in favor of their claim. The case, however, went up on appeal to the House of Lords, and the decision of the Master of the Rolls was reversed, on the ground that by the general policy of the law the policy became void in consequence of the assured's death being occasioned by his own criminal act. On this appeal the case was considered first with reference to public policy and then as a contract between man and man. As to the first point it was argued (and the judgment of the court subsequently almost followed the argument in its very terms) that suppose it had been expressly stipulated in terms that in case the assured should be executed for felony the money should be payable, would the policy of the law allow this to be effectual? Is it possible that a claim in right of a party effecting such an insurance could be maintained, or that the insurance should not be void as affording encouragement to crime, and being contrary to public policy? If such a policy could not be sustained where a risk of that kind was mentioned in direct terms and language, how could effect be given to a policy if it in reality involves that condition? The court decided that this policy was avoided, not by the felonious act, but by the probable consequences, and it was said that when the party committed the felony he had no intention of being hanged for it. It would indeed be difficult to prove that he had, but he had effected insurance upon his own life, which life ceased in consequence of his own wilful violation of the law, and it would be against the general policy of the law as well as established principles that either the insured or those claiming in his right should receive for a loss occasioned by the criminal act of the insured himself. The same result would follow in a case of an insured who committed suicide, and as insurance is a contract in which the insurer, in consideration of a premium equivalent to the risk to be run, undertakes either against probable perils and losses or against a certain event, as in case of death, but uncertain as to the period of its taking place; if the insured, therefore, could at any time, by his own act, determine the event, it is against the essence of the contract, and much more is it so if that act, as in cases of capital punishment inflicted for the commission of an offense be felonious, and which the law always considers wilful. In juxtaposition with this branch arises that of "suicide," or "death by his own hands," which expressions have been decided to mean ene and the same thing, and as it is in some measure governed by similar principles as that of capital punishment, I will consider it now in its due order. In this branch, however, of our subject will arise the additional point, as to whether at the time of the suicide or self-killing, the assured was responsible or not for his act. The authorities are somewhat at conflict in reference to this, but I think the weight of authority, particularly the more recent cases, will be found to be against the validity of claims made or policies where the assured has committed the act of suicide. A case was decided in 1847 where a party had insured his life by a policy, subject, *inter alia*, to the condition "that in case the assured should die by his own hands" the policy should be void. The insured afterward threw himself into the Thames and was drowned. In this action the jury by their verdict found that the assured "had voluntarily thrown himself into the river, intending to destroy his life, but that at the time of his committing the act he was not capable of judging between right and wrong." Upon this finding the court subsequently held that this was such a "dying by his own hands" as discharged the company from liabilty under its policy. The finding of the jury, it will be seen, amounted in terms to a finding that the insured was not insane when he committed the act, and the chief justice, in his judgment remarked that if he was insane the company was responsible, and COLTMAN, justice, said, "the finding of the jury implies that the insured was under no uncontrollable influence; that he had power to do the act or abstain from it." There has been considerable discussion over this case, particularly as to the effect of the finding of the jury, for if the insured voluntarily threw himself into the river, intending to destroy his life, as the jury found, then it must be assumed that he was in a condition to

judge and knew what he was doing and what the consequences of his act would be, otherwise it could not have been a voluntary act with a definite intention; if, on the other hand, as the jury say, "he was not capable of judging between right and wrong," then there could not, as far as any intention was concerned, have been a self-killing, which would amount in law to suicide or self-murder, which, in the absence of intent, cannot amount to crime, for a *felo de se*, or felon of himself, is a person who, being of sound mind, and of the age of discretion, voluntarily killeth himself. It is not every melancholy or hypochondrical distemper that denominates a man *non compos*, for there are few who commit this offense, but are under such infirmities; but it must be such an alienation of mind that renders them to be madmen, or frantic, or destitute of the use of reason. The act itself when committed is, according to the expression itself, *felo de se*, a felony, and the attempt to commit it remains, as at common law, a misdemeanor, and to constitute the commission of the act a felony in one case, and the attempt to commit it a misdemeanor in the other, there must be the criminal intent. The case to which I referred on this point was *Dormay* vs. *Borradaile, 5 Common Bench Reports, 380.* Following this case was another before Vice-Chancellor Wood, in which, after considering all the cases up to that period bearing upon this point, he says: "It appears to me clear that *where there is no express provision in the policy*, that in the event of the insured dying by his own hands the policy shall become void, that policy is not vacated by the circumstance of the assured having died by his own hand while in a state of temporary insanity. In the cases which have arisen in regard to policies of insurance where there has been no express contract that payment shall not be made if the insured die by his own hands or commit suicide, the question has been whether suicide committed while the insured was in a state of mental derangement was or was not an event which was provided for by the policy. There is nothing irrational in a company saying 'we will effect the insurance, but we regard the possible case of insanity as one that may occur more frequently than the ordinary risks which we are willing to incur, therefore we will guard ourselves against the loss which is likely to be caused by insanity.' There is nothing irrational or unreasonable, that is to say, morally irrational or unreasonable, in such a contract on the part of the company, and accordingly it is obvious that the stipulation is always express, that if the insured destroy himself, the event has occurred in which the company say they will not be bound, and they are accordingly not bound." When another policy contained the condition "that every policy effected by a person on his or her own life shall be void if such person should commit suicide," the Court of Exchequer Chamber has decided that where under such a policy the insured died in consequence of having voluntarily and for the purpose of killing himself, taken sulphuric acid, but under circumstances tending to show that he was at the time of unsound mind, that the terms of the condition included all acts of voluntary self-destruction, and therefore that if the insured voluntarily killed himself, *it was immaterial whether he was or was not, at the time, a responsible moral agent.* This case was followed in *Dufour* vs. *The Professional Life Assurance Co., 25 Beaven, at page 602*, where the Master of the Rolls said: "I cannot distinguish this case from *Cleft* vs. *Schwabe*, where it was held in the Exchequer Chamber that the moral condition of mind was not material in such cases." I think it also quite clear that the words "commit suicide" are not distinguishable from "perish by his own hand." These cases, and the questions decided by them, will include the third point I have mentioned in a previous part of this paper, namely, "the state of mind of assured," a question which from its very nature shows that it relates to sanity or insanity of the party, and which question could only be raised in connection with the subject of suicide already dealt with.

We now pass on to the two following clauses, which it is apparent are almost solely connected with accident insurance, for there can hardly be any such question raised upon a policy of life insurance as such, where, whether death results from immediate and proximate causes, or remote and secondary causes,

cannot by any possibilty make any difference, provided, of course, the proximate cause of death is not the consequence of a secondary cause such as the wilful illegal act of the assured for which he suffers the penalty of capital punishment, and this question has been already pretty fully, I think, discussed, but what is meant here by the expression, "secondary causes," will fully appear from the cases we will now consider.

Suppose, for instance, a person effected insurance with a company against accidental injury, and by the terms of the policy the company agreed to pay the amount insured to the assured's representatives should he meet or sustain "any personal injury caused by accidental, external and visible means, "and the direct effect of such injury should occasion his death, and suppose such policy also contained a proviso that this insurance should not extend "to any injury caused by or arising from natural disease or weakness or exhaustion consequent upon disease," and during the time such policy was in force, the assured was crossing or fording a stream and was seized with an epileptic fit and fell into the stream, and was there drowned while suffering from and in such fit, but in the fall he did not sustain any personal injury to occasion his death other than the drowning, this would be a case of "secondary cause," and the question to decide would be, What was the cause of the assured's death, or, in other words, was it accidental, and this within the terms of the policy, or was it natural, and consequently, not within such terms? I might here remark that all the authorities show that if there is any ambiguity in the language of the policy, it being the language of the company, it is to be taken most strongly against the company which used it; but here I do not think there is any such ambiguity, but that the words of the proviso mean exactly what they say, and that they point an injury caused by natural disease, as if, for instance, in the case stated, epilepsy had really been the cause of the death, but it was not, however; the death occurred by drowning. The law cannot look to the causes of causes, but to the proximate cause itself, and the maxim of Lord Bacon is clearly applicable to this case and all cases of a similar character, and it is this: "It were infinite for the law to consider the causes of causes, and their impulsions one of another, therefore it contenteth itself with the immediate cause." The above principle of law which I have annunciated was decided by the Court of Queen's Bench Division in the case of *Winspear* vs. *The Accident Ins. Co., Law Reports, 6 Queen's Bench Division, 42;* and a similar doctrine was held in *Reynolds* vs. *Accidental Ins. Co., 22 Law Times, New Series, 829*, and also in *Lawrence* vs. *The Accident Ins. Co., Law Reports 7, Queen's Bench Division, 216.*

This last case was in a policy against death from accidental injury and which contained the following condition: "This policy insures payment only in case of injuries accidentally occurring from material and external causes operating upon the person of the insured, but it does not insure a case of death arising from fits, or any disease whatsoever arising before or at the time or following such accidental injury, whether consequent upon such accidental injury or not and whether causing such death directly or jointly with such accidental injury." The insured in this case was standing at a railroad station and while there was seized with a fit and fell forward off the platform of the station across the railway track, when an engine and carriages, which were passing, went over his body and killed him, the question was whether the death of the insured was caused by an accident within the meaning of the policy, and the court held it was, and that the company was liable. I think it will be excusable if I give at some length some of the remarks made by Mr. Justice Denman in this case, as they have a strong bearing upon cases of this nature. He says in his judgment:

"The question is whether the fit was one of the several events which brought about the accident in the sense that it caused the accident to happen by causing the assured to be there (on the track) or whether it was within the meaning of the proviso, a cause of death which would prevent the policy applying to the case. I think we are bound to hold that the death arose from the en-

gine destroying the insured by running across him, and not from the previous fact of a fit having attacked him, and so brought him there. According to the true principle of law as laid down by Lord Bacon, we must look at only the immediate and proximate cause of death, and it seems to me to be impracticable to go back to cause upon cause, which would lead us back ultimately to the birth of the person, for if he had never been born the accident would not have happened. Now, if the argument of defendant's be a good one, this absurdity would follow. Supposing a man were out in the field following sport, and he were to be seized with a fit, either a fainting fit, or an epileptic fit, or any other fit, and had retired to one side of the field and remained there recovering from the fit, and being there a sportsman, not knowing he was there, accidentally shot him, it might be said in the same manner that the cause of death was from a fit. It seems to me only to require to be stated to show the entire absurdity of it. The only difference between this supposed case and this one is the time that intervened between the fit and the person being placed within the influence of the secondary accident, which in this case was very short: but I fail to see a point of reason that there is any difference between one hour, or one minute, or one day—the break in the chain of causes seems to be equally complete."

As to our next branch of the subject, "Habits," this more properly belongs to that in which I spoke of certificates of medical examiners, or under the heading of "Declarations," and as the subject with which this branch is thus connected has been mentioned fully enough to show what is required to be stated in applications for insurance of this kind, I would merely add that a person's habits may be such as to produce irreparable harm but it may be slow and remote injury to health, and thus have a direct tendency to shorten life. The concealment of such facts will be just as fatal to a policy of insurance as the concealment of a serious and deeply rooted disease, and although inquiries may not be directly and expressly made in the shape of questions put by the office, yet the law will in fairness and equity hold that the company was entitled to be made acquainted with these circumstances which might reasonably affect the risk they have incurred. The case of *Von Sindeman* vs. *Desborough*, which I have already cited, is an authority which has long been recognized and acted upon by the courts on this point; here may properly follow the point I have mentioned as to an insured person being under the influence of liquor at the time he receives injuries. I do not intend to speak of the use, or rather the abuse of liquor as a habit, which it most unfortunately is, both in our country as well as in the United States, and has, I may here remark particularly, been the remote cause and in many instances the direct and sole cause of more litigation in cases of life insurance than anything else that can be imagined. However, these remarks are beside the question; but in reference to this point it is not necessary that the assured should be actually under the influence of intoxicating liquor at the time of his death to relieve a company from liability under such a condition. If he had been under such influence at the time he met with the accident which subsequently resulted in death that is sufficient. Such was the decision in *Muir* vs. *Railway Passenger Assurance Company*, 37, Law Times, 356, and the court in this case stated "That the expression, 'under the influence of intoxicating liquor,' meant such influence as to disturb the quiet, equable exercise of a man's intellectual faculties."

We will not extend these remarks, except to cite one case on the eighth ground—"Fits," in which there was a policy containing a warranty that the assured had not been afflicted with, nor was he subject to gout, vertigo, fits, etc., and it was decided that such warranty was not broken by the fact that the assured had an epileptic fit in consequence of an accident, and that is necessary in order to vacate such a policy to show that the constitution of the assured was naturally liable to fits, or by accident or otherwise had become so liable. Lord Abinger, Chief Baron, said: "The interpretation I put on a clause of this kind is, not that the party never accidentally had a fit, but that he was not, at the time the insurance was

made, a person habitually or constitutionally afflicted with fits—a person liable to fits from some peculiarity of temperament, either natural or contracted for some cause or other during life," and in this interpretation Baron Parke concurred.

GENERAL OBSERVATIONS.

In conclusion, I would say that the amount for which a life is insured cannot, of course, be received until after death and distinct proofs of death have been furnished the company, and those who would claim the benefit of the insurance must prove the fact whether it is open to doubt or not. The only case that I can imagine might arise in which there would be other than the distinct and actual proof of death, would be in the case of a person going away and not being heard of again by his relatives and those he left behind him; and here all the authorities concur in the rule of the common law, that the presumption of life with respect of persons of whom no account can be given ends at the expiration of seven years from the time he was last known to be living, and that after that period the burden of proof is shifted upon those who assert that he is still alive. This is the principle of common law, but while it does this, it will not presume death at any particular time within or during such period, and therefore it becomes a question sometimes of great nicety, and at other times a question quite impossible to answer, to show that the assured had died before the policy on his life had ceased to exist in consequence of the regular payment of premium not having been made. The issue in such cases being an issue in fact, a jury is at liberty to find the fact of death within the period of seven years, or even at any particular time upon the circumstances proved in the case. The last English case I can find in this is *The Prudential Assurance Company* vs. *Edmonds, Law Reports, 2 Appeal Cases (House of Lords) 487.* A policy on the life of a person was granted in 1863; an action was brought upon it in 1874, and the question was whether the assured was then alive or dead. He had been absent from his former home for more than seven years. His sister and others who had lived where he had formerly lived, gave evidence as to his absence, and that they had not heard of him for more than seven years. There was a niece who had said that when she was in Melbourne in 1872 or 1873, she saw a man whom she believed to be her uncle, the assured, but he was lost in the passing crowd before she was able to get to speak to him. No effort appeared to have been made to find him at Melbourne, and the other relatives believed the niece to have been mistaken. The jurymen expressed a similar opinion. The House of Lords decided that there was evidence that the assured had been absent for above seven years without being heard of, and that he had not been heard of if this niece was mistaken, and if the jury, from the improbabilities of the case or otherwise, believed her to be mistaken, then the assured, having been absent for above seven years without being heard of, must be presumed to be dead, and the term "heard of him" means something more than a hearing of that which could be treated as inaccurate—a piece of mere gossiping suggestion.

And to close, I would say that policies of life insurance have been held to be the subject of a *donatio mortis causa* and have been treated in this respect in the same way as bonds, mortgages and promissory notes. Cockburn, Chief Justice, said: "We do not think there is any distinction in this respect between these policies and bonds and mortgages, and they are the subject of *donatio mortis causa.*"

Abnormal Termination of the Ureter in the Female.

Wölfler (*Prager med. Woch.*, No. 24, 1895) has written a valuable article on this condition. Five instances are recorded of the ureter opening into the urethra. In one of these the bladder was absent, yet the patient, aged 47, did not suffer from incontinence of urine; nor was this complication present in two other cases where the bladder existed, but retention and hydronephrosis were observed in another of the series. Lastly, incontinence of urine was observed in one case, but the patient was aged 14—an age when that affection is frequent without abnormalities. The ureters were made to open into the bladder by a plastic operation.

CORRESPONDENCE.

"THE LATEST THING IN SURGICAL FADS."

A REPLY TO G. FRANK LYDSTON, M.D.

EDITOR MEDICAL AND SURGICAL REPORTER.—Sir:—Ridicule is a dangerous weapon. The professional prophet follows a precarious occupation. Dr. Lydston lacks ability to use ridicule efficiently, and knowledge to render his prophesies valuable. He mistakes play of a brilliant imagination for argument, and seems to be incapable of placing a fact in its true and logical relation with other facts.

I. "The avidity with which", he says, "certain surgeons seized upon the straw held out to them by Dr. White was amusing. There appeared to be a desperate struggle to determine who should be the first to perform the operation suggested."

Is it not barely possible that these surgeons were eager to cure patients, suffering terribly, who could be cured in no other way?

II. "The normal prostate is by no means so easily outlined by the examining finger as some would have us believe." (With beautiful inconsistency our author proceeds to give several instances in which he, at least, had apparently no difficulty in determining the condition of the prostate).

Is it not beyond dispute that with the finger in the rectum the surgeon can make a fairly accurate estimate of the consistency, size and outline of the posterior-inferior portion of the prostate; and that with the additional aid of a sound in the bladder some idea can be formed of the condition of the vesical aspect of the gland? I have never seen it claimed that any accurate mental picture could be formed of the upper segment of the prostatic urethral collar by the aid of the finger alone; but even here the expert can with the cystoscope give us reliable information.

III. He then proceeds to give us several cases which have no real bearing on the point at issue. In the first case quoted, one testicle was, he says, "evidently out of service." He gives no evidence whatever to prove this assertion. After removing this testicle the patient suffered from an epididymitis of the remaining testicle. At the time of the report the prostate was "larger than normal." Cases 2, 3 and 4 are those of monorchids who had more or less enlarged prostates.

Dr. White nowhere claims that monorchids may not become the victims of prostatic hypertrophy.

His conclusions, after giving the evidence, "for and against," are as follows: "It seems obvious that, in view of the contradictory character of the observations above recorded, no safe deductions can be drawn from them at this time, as to the practical value of unilateral castration in cases of prostatic enlargement. * * * * It seems probable that the results, even though occasionally favorable, will be slow and uncertain compared with those following the bilateral operation."

(Pamphlet reprinted from *Annals of Surgery*-pp 44-45.)

After a good deal of aimless drivel, our writer comes to the sapient conclusion, "that the radical operations of prostatotomy and prostatectomy at an early period of the disease are not performed with sufficient frequency." O, Tempora! O, Mores! The follower of White, who thinks that his patient needs orchidectomy (an operation "easy of performance," and not in itself dangerous to life) is accused of being tainted with "surgical itch and cupidity", and is advised to reform and to inflict on his patient prostatotomy, an operation which to-day is almost universally considered a temporary palliative, or prostatectomy, a procedure of uncertain efficacy, difficult of performance, of

great severity, and attended with a mortality of one in five (Moullin).

Professor White's operation needs no defence from me. He has, I believe, introduced a remedy for enlarged prostates which will safely and permanently relieve thousands of properly selected cases. With true scientific frankness he has given the world all the facts in his possession bearing on his discovery. Certainly there is no reason why he should be ashamed of the offspring of his brain. "Out of one hundred and eleven cases, only nineteen were not definitely stated to have improved at the expiration of varying periods." Of these nineteen, nine did not live long enough to decide the success or failure of the operation, nearly all succumbing to uremia, the result of neglected prostatic hypertrophy with its too well-known consequences of cystitis, ureteritis and chronic suppurative pyelitis and nephritis, "leaving only ten per cent. of apparent failures."

White's operation is, it is true, only in its infancy. But it is a lusty, sturdy infant, reminding one of *Puck's* cartoon of "our infant American industries."

FRANCIS L. HAYNES, M.D.

Los Angeles, Cal.

IS BOILED LINSEED OIL HARMFUL?

J. F. writes that by mistake a certain druggist sold boiled for raw linseed oil. About three pints of this was given to a strong horse which had been foundered the previous day by drinking cold water. The oil was administered at midnight, and six hours later the horse was dead. The charge is made that the boiled oil caused the animal's death.

No definite answer, probably, is possible, owing to our incomplete knowledge regarding the chemistry of oxygenized oils, and more so as to physiological values of the end-products of modified oils. Drying oils are supposed to consist largely of linolein, a glyceride of linoleic acid. Through the influence of absorbed oxygen the linolein is split into its component parts whereupon the glycerin is largely oxidized into various, partly acrid substances, with a simultaneous liberation of carbon dioxide and water, while the linoleic acid is converted into the resinous linoxyn. How far these changes have progressed in "boiled oil" we will not attempt to say. However, in heating linseed oil with lead or an oxide or salt of the same, a certain percentage (about five per cent.) of the metal enters into solution, while also some acrid oleoresin is formed. By the changes thus induced the property of absorbing oxygen, and hence oxidizing and "drying," is vastly increased.

The question, then, resolves itself into this. (1) Are linoxyn or any of the other oxidation products sufficiently toxic, or is there enough lead in solution to prove fatal to man or beast? (2) Are the different constituents of boiled oil sufficiently irritating to aggravate an already existing physical disturbance not fatal in itself? (3) Was the oil in question produced by the methods here considered, or is it a base substitute or mixture, containing ingredients not ordinarily belonging to true boiled linseed oil, and which might be poisonous?

As to the particular instance in question, the first question arising is that of correct diagnosis. Founder may be brought on by cold water draughts, but it also results by metastasis, *i. e.*, by the shifting of inflammation from one organ to another. Drinking of cold water by horses may induce, aside from founder, inflammatory conditions of intestines, and more particularly of the kidneys. The horse may have died from any one or combination of these causes, or the trouble may have been superimposed upon an already weakened constitution. However, while no assertion to that effect is made, the boiled oil may have proved sufficiently irritating to aggravate the original symptoms and thus indirectly bring on death. — *Western Druggist.*

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PHILADELPHIA, SATURDAY, NOVEMBER 16, 1895.

EDITORIAL.

FEEDING THE SICK.

"Physician's Day" is a feature of the "Pure Food Exposition," an exhibition annually given to promote the use of pure food-stuffs, introduce new food preparations and to advertise various novelties and conveniences related to the culinary department of every day life. In addition to the display of materials and the means for manipulating them, there is, what is probably the most attractive feature of the exhibition, a series of lectures and demonstrations on the scientific preparation of food. These demonstrations are given by Mrs. Rorer, a lady who, by scientific education, long experience and sound common-sense is eminently fitted to teach scientific cooking, even to the physiologist.

Physician's day is devoted to the consideration of the materials and modes of preparation of food for the sick. Invitations are sent to physicians throughout the city and vicinity, to training schools for nurses and to hospitals. Numbers of physicians have found it profitable to attend the exposition, and large delegations of student nurses are present for instruction.

Before such an audience, recently, the lecturer expressed herself in unmistakable terms concerning the ignorance of the ordinary trained nurse of properly preparing food for the sick. She said with emphasis:

"The nurses of this city know full well how to keep rooms beautifully neat and clean, but when it comes to preparing anything to eat for a patient they are completely at a loss, and why shouldn't they be, for how many of them could tell you anything about the chemical composition of either an apple or a potato?"

Mrs. Rorer is right, and she need not have confined her statements to the nurses of this city. This lack, however, will be rectified so soon as medical men

realize the immense importance of food in the treatment of disease, and demand the observance of their instructions in matters of diet with anything like the scrupulousness which they insist upon in the preparation and administration of drugs.

At the conclusion of the demonstrations of a number of ways of cooking for the sick, the lecturer said:

"If I could only impress upon this audience one sentence out of the many I have uttered this afternoon, my mission would be complete. Whenever you have a patient to feed, find out what part of the physical economy is affected and cater to it."

Incidental to the cooking, and of scarcely less importance, is the serving of food to the invalid, and at the lecture the table was set with a variety of trays, on which the edibles for the sick were displayed in a fashion to tempt even the capricious appetite of the invalid. There is quite as much in serving the sick as in cooking for them; therefore, this side issue was full of home truths. On pretty trays were laid embroidered doylies, a tiny vase containing a bunch of violets or a few pinks, and the beef tea, albumen and milk or other food for the sick in exquisite china dishes that made one hungry just to look at them.

We note a few of the recipes given which are useful, and, at least in the hands of the lecturer, apparently not difficult to compound:

Koumys—Heat two quarts of milk to 98 degrees Fahr. Boil for a moment two tablespoonfuls of sugar and two of water, add to milk, dissolve a third of a yeast cake in two tablespoonfuls of the milk. Add it also to milk. Mix, cork and tie tightly. Stand in a warm (68 degrees Fahr.) place over night or twelve hours. Then turn on sides in a cold place for twelve hours, and it is ready for use, and is good as long as sweet.

For consumptives all fatty foods are permissible. Suet in milk is particularly good for those suffering with lung troubles. This is prepared by taking one ounce of real suet chopped fine and simmered in a double boiler in one quart of milk for thirty minutes. Strain carefully through two thicknesses of cheese cloth and salt to taste.

Beef tea, which, as all know, is so frequently a white non-nutritious fluid, is, if made according to Mrs. Rorer's method, a veritable life-giving liquor in which all the juice of the meat plays an active part, so that the patient receives the very essence of the beef, which means to the invalid strength and health, brain, muscle and nerve.

To make this take one pound of finely chopped beef to one pint of cold soft water. Soft water is best, as it softens the fibre of the meat and makes it easier for the juices to exude. Mix well together until the meat is reduced to a pulp, stand over fire where it cannot possibly boil, watch carefully, as the color must not be destroyed, strain through a colander and return to kettle.

Beat the white of an egg and the shell with two tablespoonfuls of cold water, stir this into the beef tea and return to the fire, but do not under any circumstances let it boil. Strain carefully through two or three thicknesses of cheese cloth, add one-half teaspoonful of salt, and if you have been clever the liquid thus obtained will be as clear as wine. To make beef tea sounds like an easy task, but it is in reality a most difficult one if done properly. Beef tea to be right should never for an instant reach the boiling point. The clarifying is done throughthe agency of the white of egg and egg-shell as directed. Use a cloth dipped in cold water through which to strain it.

Beef juice is made by merely pressing a piece of broiled steak that is quite un-

derdone. It is only broiled in order to keep the juices and have the crispness of the outer side add to the flavor.

Unleavened bread and steamed apples were two dishes specially suited for invalids and were prepared in the following manner:

Unleavened Bread.—Put into a bowl one quart of flour; add a teaspoonful of salt and rub in two tablespoonfuls of butter or oil. Add sufficient milk and water to make a stiff dough; knead well, roll out in thin sheets, or make in small biscuits and bake in a moderate oven.

Steamed Apples.—Core bright red apples and place them in a steamer. Steam for twenty minutes. Serve warm with whipped cream.

ABSTRACTS.

MASSAGE IN THE TREATMENT OF LUXATIONS, BRUISES, AND CONTUSIONS.

The growing popularity of this method, as applied to sprains, contusions, and dislocations, is well attested by the comparative frequency with which articles laudatory of massage, as applied to surgical affections, have appeared in the periodicals of the day. Of these—many of them brief reports of cases, others more elaborate—none is more noteworthy than the contribution of Van Arsdale and Gallant (*Medical News*, April 20, 1895). These gentlemen, as a result of an exceptionally wide experience, hold that massage will prevent swelling, pain, and stiffness, or, when these symptoms have become manifest, allay them promptly, and that it greatly shortens the time of treatment and permits of prompt use of the injured part. A mixture of equal parts of ol. hyoscyami coct. (Ph.G.) and pure chloroform has proved in their hands the most serviceable lubricant. The treatment should be repeated twice daily, morning and afternoon, for half an hour at a time. After massage the joint should be rested for half an hour and then should be used. Elevation of the part between *séances* is always advisable. Van Arsdale thus describes the method of rubbing: Beginning well above the tender or swollen portion of the limb, gentle, systematic, upward strokes are carried well above the knee. These first strokes are made with the pulp of the fingers, both hands being used and held parallel with the leg At first the sides of the leg are attacked, one by each hand; but soon more of the palmar surface of the fingers is brought into contact with the skin of the patient and gradually surrounds the whole circumference of the leg, each stroke being long and slow (not more than thirty to the minute). As the force of the pressure is gradually increased, the pulp of the thumb is brought into play, and the right hand supersedes the other in force and activity, until it will become necessary to grasp the lower part of the heel or the metatarsus, and make counter-traction, in order to steady the limb and permit of a greater development of force.

When the leg, by a change of color from blue to white, shows evidence of depletion of venous blood and lymph, the strokes may begin lower down and more directly over the seat of injury, always being carried upward, with the pressure exercised by the fingers—delicate at first, but with ever increasing intensity—with the thumb of one hand only, while the other hand steadies the foot in the most convenient position.

The tissues, which were hard and resistant to the touch at first, soon become softer and more elastic, and with this

the pain at first experienced by the patient grows gradually less and his confidence in the operation increases.

From time to time, whenever the superficial veins of the leg that were first emptied appear engorged or swollen, it is considered imperative to continue the strokes upward to above the knee, and repeat the massage of the upper leg in order to evacuate the newly imported supply of blood and lymph well into the vessels of the thigh and, as it were, "drive the fluids home." In like manner the toes and the portions below the place of injury are visited and their tissues also are emptied of the stagnant fluids.

The region around the ankle is now considerably smaller, paler, and softer than at first, and the thumb, keeping up the upward stroking all the time, and moving with an independent action against the fingers placed opposite to it on the limb, busies itself finding out the special points around the joint where more marked hardness and stiffness may be felt, and in diving down between the bony projections and tendon sheaths, while it glides more lightly over the prominences and ridges of bone. The well-trained thumb is very quick at discovering the points of special soreness, even without the help of the patient's subjective sensations, and will make them special points of attack. When fatigue is experienced the hands are changed and the work carried on with the left.

Towards the end of the *séance*, which must be indicated by the patient's sensations and condition, the strokes are made to grow gradually more gentle again, and, becoming longer, extend from the foot well up to the knee, more closely resembling those described by some authors as effleurage. This procedure always gives the patient a sensation of pleasure and relief, and when the *séance* is ended he should be entirely free from pain, at least for a time. If he is not, it is a sign that the massage has not been properly applied.

Graham, in the *Edinburgh Medical Journal*, writing on the same topic, thus expresses his views: No two masseurs are alike by nature, nor in skill, tact, n d education; and the one who knows is anatomy and physiology well, when called to a recent acute sprain, will not begin at once to massage the injured joint, but a distance above it, on the healthy tissues, by gently stroking or effleurage towards the heart, gradually proceeding nearer and nearer to the painful place. This has a soothing effect, and pushes the flow along in the veins and lymphatics, making more space in them for the returning currents coming from beyond the region worked upon, and carrying away the fluids that have leaked out of the vessels. The same should be done on the part of the limb beyond the joint, for the circulation is hindered, both in going out and coming in, by reason of the swelling. Next, the masseur who knows his business will begin again at a safe distance above the injured joint, and use deep rubbing, kneading, or massage properly so called, one hand contracting as the other relaxes, alternately making circular grasps, and this should be done on the parts above and below the seat of the sprain. By this procedure the effects of the previous stroking or effleurage are much enhanced, an analgesic or agreeably benumbing effect is produced upon the nerves. which extends to the painful place, and the retarded circulation is pushed along more vigorously, making room in the vessels for the swelling, the effusion, the dammed embargo caused by the landslide of blood and lymph farther up the stream to float off, and preparing the way for the next step in the treatment. At the end of fifteen or twenty minutes of this manner of working, gentle firm pressure can be made immediately over the swollen and but recently very tender parts, which in a few seconds can have circular motion with the greatest push upward added to it; and this, if sufficient tact be used, will in all probability not hurt, but be positively agreeable. By this the effusion is spread over greater space, pressed out of the tissues as water is out of a sponge, and brought into more points of contact with the veins and lymphatics, by which it is absorbed and carried off, the same pressure that causes the dislodgement of stagnating fluids also aiding absorption by pressing them into the small vessels. Then a snug, well-fitting bandage should be applied.

Under this plan of treatment, used twice a day, the comfort produced and the speed of recovery would scarcely be believed unless experienced by one who had had a similar injury treated in the regular orthodox way, with absolute rest and immobility, by means of fixed dressings.

Some years ago the author published the results of massage in more than seven hundred cases of sprains, joint contusions, and distortions, of all degrees of severity, treated by many different observers, most of whom were French, German, and Scandinavian army surgeons, in order to confirm the experience obtained in some of his own cases.

The invariable result of each and all was that such injuries thus treated got well in one-third of the time that similar cases did under the usual method of absolute rest and fixation, and with less tendency to subsequent weakness, pain, and stiffness.

Experience teaches that the sooner after a sprain massage is begun the quicker is the recovery. In Germany the military authorities now require a semi-annual report from their surgeons upon the results of massage in injuries of joints; and the statistics of Gassner, Starke, Korner, and others clearly show the rapid results of this method, and the economy of time to the soldier. He fears that it will be a long time before many of the physicians and surgeons in the United States will condescend to try their hands at massage. Indeed, most physicians adopt, prescribe, or tolerate massage in the same way that Constantine the Great embraced Christianity—more from policy than from conviction.

Graham, further, quotes the experiments of Mosengeil, who injected into corresponding joints of rabbits India-ink. With each rabbit he massèed one of the joints at regular intervals, and left the corresponding joints on the other limb untouched. The swelling and stiffness caused by injection rapidly disappeared under massage, and on examination of the massèed joint after the animal was killed it was found emptied of its contents. On microscopic examination it was seen that the greater portion of it had been forced into and penetrated through the synovial membrane. In the joints which had not been massèed the India-ink was found in the joint mixed with the synovia, forming a smeary mass, and it had not even penetrated the tissue of the synovial membrane.

The same results were uniformly obtained in all the experiments, showing that absorption takes place from joint cavities by means of lymph spaces and small openings communicating with lymphatic vessels, and through these with lymphatic glands.

Castex (*Archives Generales de Medecine* for 1891 and 1892) experimented on dogs for the purpose of observing the effect of massage after injuries. The injuries were intentionally produced in corresponding places in two limbs of a dog. The seat of one of these injuries was massèed, one was left alone, and the tissues that were hurt were examined under a microscope. The more injured limb was always chosen for treatment, and the other had no massage, but was left to the natural evolutions of the injuries. The effects, immediate, consecutive, and remote, were carefully observed by experts in laboratory work, who were not told which leg had been massèed.

Massage was done immediately or very soon after the injuries; even in the case of dislocations, as soon as these were set, and always with remarkable relief to the pain, swelling, and stiffness, so much so that after a few massages of stroking or kneading of five or ten minutes each once a day the dog had full use of the leg that had been massèed, whereas the leg that had not been massèed remained swollen, stiff, and painful for a long time, and in some cases did not recover at all.

The experimenter states that no matter how severely the dogs are injured, especially the Scotch shepherd dogs, they do not seem to mind it at all after it is over, running about as if nothing had happened as soon as they are set at liberty.

All the experiments tended to one conclusion; one typical result is quoted. The two shoulder-joints of a large watch-dog were dislocated by inward flexion. The head of the humerus of each was plainly visible under the skin, showing a luxation forward and inward

—intracoracoid. It was easily reduced by traction. Five minutes of massage was at once given to the right shoulder, which seemed to afford relief, judging from the gratified way in which the animal submitted, and after this a figure-of-eight bandage was applied around both shoulders. The dog had massage for five minutes daily to the right shoulder alone, and for the first three days he walked with difficulty. The right shoulder gradually became less painful to touch, and he stood firmer on that side. On the fourth and subsequent days all sorts of pressure upon the masséed side were borne without discomfort, when the other shoulder was pressed, the dog growled and attempted to bite. Six days after the dislocations he supported himself well on the masséed limb, but held the other up, and the non-masséed shoulder was still swollen and painful. Both shoulders then stayed in place, in spite of passive movements that might have dislocated them. On the eight day the dog walked well with the masséed limb, but held the other up, and the latter was still swollen and painful, and there was crepitation in the joint. Thirteen days after the injuries the dog took an occasional step with the limb that had not been masséed, and two months later it was in about the same condition, while he freely used the limb that had been masséed in walking and running.

There was then atrophy of the muscles of the left shoulder, evident by the prominence of the bones; none of the muscles of the right.

Soon after the swelling from the injuries to the dogs had subsided, the muscles became more or less atrophied in the limb that had not been masséed, but not at all in the limb that had been masséed. At the end of five or six months the dogs were killed and the tissues examined under the microscope. The muscular tissue of the side that had not been masséed presented a diffuse sclerosis; the connective tissue intervening between the fibres and bundles of fibres was thickened; there were institial hemorrhages, especially in the cellular tissue around the muscles; the internal and external coverings of the bundles of muscular fibres (perimysia) were infiltrated with blood, and also the fascia outside of this. The transverse markings of the muscular fibres (striæ) were effaced in many places, while the longitudinal striation or marking which is not seen normally was very distinct. The muscular tissue from the corresponding region that had been masséed was found to be natural in every respect. Castex has forgotten to mention the appearance of the sarcolemma. In all probability this also was hardened, thickened and infiltrated with blood, as were the outer and larger coverings.

The blood-vessels appeared perfectly natural from the masséed side, but those from the side that had not been masséed presented a hyperplasia of their external coat.

The nerve filaments were found to be normal in the masséed side, while in the side that had not been masséed there were abundant evidences of perineuritis and interstitial neuritis exerting distinct compression of the nerve fibres. The nerve-sheath was at least three times as thick in the non-masséed side, and the connective tissue around the perineurium was also thickened with numerous new-formed cells. The small vessels in the perineurium were also the seat of a peripheral hyperlasia or thickening. The lesion of the nerves was more marked than that of the vessels.

In human beings Castex found that when massage was begun early or from the very first in contusions, sprains, and dislocations, not only were the immediate symptoms relieved, but also the subsequent serious consequences that are so apt to follow these injuries. Wasting weakness, contractions, and stiffness were prevented. But when he tried massage in old cases of muscular atrophy or wasting following joint injuries, he got no increase of muscular tissue. The stiffness was removed, the muscles became suppler, but they still remained thin and lacking in strength. If he had combined passive and active movements with the massage, Graham suggests that he would probably have obtained growth and strength of muscle. He found the galvanic and faradic currents of benefit in promoting increase of muscular tissue. Muscular contraction from electricity is but another form of motion.

Numerous theories as to the cause of muscular atrophy from injuries of joints

have been considered and abandoned. The injury to the joint starts up more or less arthritis; the articular nerves are irritated; this irritation is transferred to the spinal cord; the nerve-centres affected act in turn upon the centrifugal nerves going to the muscles, and these determine at their peripheral ends the muscular atrophy. With a view to the elucidation of this, Deroche has repeated seven times, and always with the same results, experiments which were done for the first time at the College of France by Raymond and Ovanoff. He divided the posterior roots of the last three lumbar nerves of the left side in dogs and rabbits. After cicatrization had taken place, he assured himself that numbness was complete from the thigh to the knee of the left lower limb, so that irritation of this region was not felt. The corresponding limb was left intact. An arthritis was then set up in both knees by introducing a thermo cautery into them. No pain was felt in the left knee, but much in the right. Three months afterwards the animals were killed, and in both knees the lesions of arthritis were found; but the muscles of the thigh of the left limb were of normal size, of the right atrophied.—(Ed. *Therapeutic Gazette.*)

CURRENT LITERATURE REVIEWED.

IN CHARGE OF SAMUEL M. WILSON, M. D.

History of a Case of Tuberculosis of the Bladder.[1]

Mr. G. E. S., age thirty-one, gives a family history of tuberculosis; father dying at fifty, having suffered from tuberculosis two years previous to the birth of this child. The mother died five years later from the same disease. Save always being troubled with frequency of urination, this young man enjoyed good health up to five years ago. Four years ago he had an attack of renal calculi and one year later frequency of urination became so troublesome that he sought advice. The urine contained pus, but no stone could be found in the bladder, but in its lower part was a small nodule, from which the instrument drew blood. Two small hard nodules were found, one in the head and one in the body of the epididymis which, the patient says, have been present as long as he can remember. No evidence of disease of the prostate was found and no tubercle bacilli in the urine.

Fearing abrasion of the mucous membrane might form new foci of disease, the cystoscope was not used.

The patient was put on Fellow's hypophosphites and one grain capsules of iodoform three times daily. At the end of twelve months his condition was about the same, and he was given methylene blue for one year. Urinary analysis showed lessening of the pus in the urine, but there was loss of flesh, poor appetite, night sweats, evening temperature of 101°–102°, dull pain over the pubes, and his stomach would no longer retain the drug. Change of climate to Nassau was advised and iron, strychnia and calisaya given. After two months he returned with normal temperature, marked gain in flesh and good appetite. Several months later he had an attack of follicular tonsillitis with persistent swelling of the glands of the neck and a return of night sweats, evening rise of temperature and loss of appetite and flesh. He now went to Vichy, in the south of France. Treatment—tonic. In two months he returned; all the bad symptoms were gone and there was considerable gain in flesh. Examination of the urine showed decrease in the amount of pus, but the frequency of urination is unchanged. The treatment now followed is iodoform and hypophosphites.

A noteworthy point is the absence of involvement of the prostate, the disease showing itself in the epididymis and the wall of the bladder with a lack of the usual symptoms of tuberculosis of the bladder. There was no acute pain and no passing of blood. This case seems to show the inefficiency of drugs to control or even retard the disease, while ocean voyages and change of air showed immediate beneficial effects.

[1] Homer E. Fraser, B.S., M.D., *Brooklyn Medical Journal*, October, 1895.

Insured Lives as Affected by Gout.[2]

At the suggestion and request of the general manager, I have read the report of the actuary on the experience of the company with gouty subjects, and have carefully considered the medical aspect of the subject. He has subdivided the risks according to the duration of the insurance, the ages, and the proportionate height and weight of the insured and the date at which they were accepted, and in all these divisions finds the same extraordinary increase of loss and the presumption remains that this increased mortality is due to the fact that the lives of the insured were deteriorated and shortened by their gout. The number of cases, forty-eight, is too small to admit of much generalization, and therefore I have carefully gone over each individual case to see whether this view would be sustained, or whether there were any other circumstances which might

[2] E. J. Marsh, M.D., *Glasgow Medical Journal*, September, 1895.

account for the loss. The action and rules of the Mutual Life have always been in accordance with the opinion that gout tends to shorten life in the majority of instances, but in a few exceptional cases they have recommended the issuance of policies. How carefully such selection has been made appears from the actuary's report that at the end of 1887 of 300,000 policies issued only fifty eight were to forty-eight persons in whose applications was any statement indicating a history of gout. Of the forty-eight cases reported I think four should be omitted, as one was evidently reported gouty by mistake and the other three had never had an acute attack. Of the forty-four cases insured fifteen have died, a mortality of thirty four per cent., which far exceeds that of the company's experience in general. We would consider that this might be the result of coincidences rather than cause and effect were it not that our conclusions are borne out by the judgment of the physicians and the experience of other life insurance companies which have had more risks of this class. The question in the mind of Sir Dyce Duckworth in his recent treatise on gout seems to be how far such risks are impaired and at what rates they should be valued in accordance with the practice of English life insurance companies.

New Treatment for Epididymitis and Orchitis.[3]

In these affections hot poultices, with or without tobacco, together with veratrum viride internally, have given the most relief in my hands until by an accident two years ago I tried the application of guiacol along the upper portion of the scrotum and cord. To reduce temperature and quiet pain I first applied it in a case with a temperature of 104°. To my surprise in two hours afterward the temperature was reduced to 99.5° and the pain, which had been intense, was entirely gone. It is true that hot applications were applied in this case within a half hour after the application of the guiacol, but I have not seen hot applications alone relieve the pain or reduce the temperature with such rapidity. Ten minims of the drug are dropped into a butter plate or other small receptacle and then painted along the line of the cord and the upper portion of the scrotum. This is left uncovered for half an hour, the testicles and scrotum being elevated in the meantime. After this my own method consists in laying the scrotum upon the abdomen, covering it with a layer of flannel wet with hot water and laying over this an ordinary English icebag filled with water as hot as the patient can bear. This retains the heat much longer than the ordinary poultice and if not filled too full produces a slight compression without pain. This is kept up until bed-time, when the patient is to apply an ointment of twenty-five per cent. ichthyol in lanolin. This is surrounded by rubber protective and the organ supported on the abdominal wall. The following morning the hot applications are renewed for half an hour or one hour and then the ointment reapplied until evening. If pain and temperature return a new application of guiacol may be made, but generally it is best not to do so until thirty-six hours later. After the pain and temperature have subsided the application of the hot bag for one hour twice daily and the internal administration of a saline cathartic once daily and small doses of iodide of potassium will hasten the absorption of the induration.

The results are no better, so far as the final issue is concerned perhaps, than those obtained by other methods, but the immediate relief of pain, the very short period of confinement and the absence of any untoward symptoms or results, convince me that this method is an improvement. The guiacol should never be painted upon the lower portion of the scrotum or upon the scrotal tissue proper, as it is liable to produce excoriations in some individuals, and only the pure Menck's guiacol should be used.

[3] James P. Tuttle, M.D., *Journal of Cutaneous and Genito-Urinary Diseases*, October, 1895.

Iodoform Ointment Injections in the Treatment of Suppurative Adenitis of the Groin.[4]

The chief objects to be obtained in the treatment of suppurating inguinal buboes are their rapid disappearance, an amelioration of pain and the absence of a compromising scar in the groin. It was not until 1856 when aspiration of the pus and injection of diluted tincture of iodine was advocated that such favorable results were in a degree obtained. Scott Helm, in 1886, was, I believe, the first to substitute iodoform for tincture of iodine.

In 1889, Von Eichsloff reported a series of cases, treated by injections of iodoform and ether, which he employed in two different ways, as follows:

1. The pus was withdrawn and the cavity irrigated with boric acid solution and then injected with the iodoform and ether mixture, the puncture being covered with an ordinary dressing, left in place for three days. In some cases he had to make a second injection, but never a third. A cure was accomplished in from three to eight days.

2. The parts were cleansed, and the iodoform-ether mixture injected without evacuating the pus. As a rule two injections were required, and cure obtained in about twelve days.

In the same year Yontan described a method as follows: The parts are shaved and cleaned; the bubo opened with a lancet, and all the pus forced out; the abscess sac then irrigated with diluted Van Sweiten's solution, and iodoform vaseline injected with a glass syringe, previously warmed in hot water. A cold wet dressing is applied to congeal the ointment at the opening.

I have satisfactorily employed this method, with the addition of peroxide of hydrogen, as follows:

The operative field is shaved and rendered surgically clean. A few drops of four per cent. solution of cocaine are injected beneath the skin at the point for puncture. A straight, sharp-pointed bistoury is thrust into the most prominent point of the tumor until pus flows. All the pus is forced through this opening by firm but gentle pressure, as the procedure is painful. The cavity is irrigated with pure peroxide of hydrogen until it returns clear. It is then irrigated with 1.5000 solution of bichloride, and this carefully squeezed out. The cavity is now filled, but not painfully distended, with ten per cent. iodoform ointment by a previously warmed glass syringe. A cold, wet bichloride dressing is now applied with a fairly firm spica bandage. In order to secure the best results, this method should be employed only when the glands are thoroughly broken down.

[4] James R. Hayden, M. D., *Am. Jour. of Med. Sciences*, November, 1895.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

Permanganate of Potassium in Opium Poisoning.

In the *Therapeutic Gazette* (August), there appeared a brief note regarding a case of morphine poisoning, in which the patient is supposed to have ingested 30 grains of the sulphate of morphine, and in which recovery took place under a method of treatment in which the permanganate of potassium was largely administered hypodermically. Notwithstanding the arrays of facts in the exhaustive research of Dr. Sharp on this topic, our opinion in regard to the question remains unchanged and may be expressed as follows:

We think that there is little doubt that this substance, when given by the mouth during the time that morphine still remains in the stomach, possesses distinct antidotal influence, since by its powerful oxidizing properties it speedily destroys the alkaloid of opium. Even here, however, it should be remembered that the action of the permanganate in the human stomach must be far less efficacious, so far as oxidizing morphine is concerned, than it is when placed in a test-tube, since the presence of other contents of the stomach, of mucus, or the mucous membrane itself, to a certain extent helps to impair the full effect of the antidote. When it comes to the administration of the permanganate of potassium hypodermically for the purpose of acting as a chemical antidote in morphine-poisoning, we think that we have reached a *reductio ad absurdum*, for two reasons. In the first place, the permanganate of potassium possesses no powers which would enable it to act as a physiological antagonist to the influences of morphine, and the only way in which it can do good in poisoning by this drug rests upon its ability to oxidize the alkaloid. As a matter of fact, a solution of permanganate of potassium injected into the subcutaneous tissues is at once oxidized and changed into a different substance, and, therefore, can no longer act as the permanganate; and further, even if this chemical change did not take place, its hypodermic administration would be futile, since long before it could be absorbed and act upon the morphine, which is widely distributed in various portions of the body, it would have oxidized other substances which it might have met with in the blood or other tissues of the body. We are well aware of the fact that quite a number of cases of morphine-poisoning with recovery after hypodermic injections of permanganate have been reported within the last few months, but we have yet to see one in which strict scientific evidence was adduced that the recovery depended upon this method of treatment.

We doubt not that the hypodermic injections frequently administered have some influence in keeping the patient awake, or, in other words, of preventing him from forgetting to breathe, by reason of the pain which these hypodermic injections adduce. In other words, the recovery in these cases, if due to this method of treatment, rests upon the peripheral irritation which is caused, and not upon any action of the permanganate of potassium.

In the case which was reported by Dr. Suker, the patient received no less than nineteen hypodermic injections, on an average every ten or fifteen minutes, which caused more or less swelling and discoloration of her arm, and that in addition she received that most powerful of stimulants, $\frac{1}{50}$ grain of nitroglycerin hypodermically, and $\frac{1}{4}$ grain of apomorphine; the first drug "acting nicely," according to the statement of the reporter.—(Ed. *Therapeutic Gazette*, October 15, 1895.)

Tryptic Digestion and the Internal Secretion of the Spleen.

A. Herzen (*Rev. Gen. des Sciences*) revives the theory as to the influence of the spleen on pancreatic digestion, which Schiff was the first to put forward in 1862. It has long been known that the digestive action of pancreatic juice on proteids is not continuous but intermittent, and that it appears regularly with the process of gastric digestion. Schiff showed that in animals from whom the spleen had been removed, neither the pancreatic juice nor an infusion of the pancreas had any digestive influence on proteids. Herzen has combined Schiff's views with Heidenhain's researches on zymogens. He finds that the volume of the spleen at any moment varies directly as the amount of trypsine in the pancreatic juice, and inversely as the amount of zymogen. Thus the maximum quantity of zymogen is present during starvation, when the trypsine and splenic dilatation are at their minimum. Six or seven hours after food the conditions are exactly reversed. Furthermore, admixture of infusion of congested spleen greatly aids the pancreatic digestion of proteids. The blood of the splenic vein has a similar action, that from other vessels none. Herzen concludes that in the living pancreas the protrypsine is transformed into active trypsine by the influence of a substance produced in the spleen in quantity proportional to the intensity of its congestion. The substance finds its way to the duodenum through the general circulation.

SURGERY.

Recent Advances in Cerebral Surgery.

Von Bergmann (*Centralblatt fur Chirurgie*, No. 27, 1895), at a recent Congress of the German Surgical Society, held at Berlin, brought under notice certain advances that have been recently made in the department of cerebral surgery. In cases of tumor of the brain, surgery has of late

done very little beyond facilitating a correct diagnosis and rendering operative interference less dangerous. In Jacksonian epilepsy surgical treatment is usually followed by relapse, and can effect a certain cure only in those cases in which the convulsions are due to the compression of a circumscribed cortical motor centre by a tumor, as, for instance, a cyst of traumatic origin. On the other hand, very decided progress has been made in the operative treatment of different forms of intracranial suppuration of otitic origin, such as cerebral abscess, epidural suppuration, infective thrombosis of the lateral sinus, and leptomeningitis. The most dangerous forms of chronic aural suppuration, which is usually excited by a collection of cholesteatoma in the interior of the ear, are indicated by intercurrent acute and subacute attacks, with fetid discharge, and by the presence of polypoid granulations on the tympanic cavity and the auditory meatus. The extension of the inflammation through the thin and carious tegmen tympani sets up pachymeningitis, which, in its turn, gives rise to an extradural or epitympanic abscess, or to an intradural cerebral abscess. The cerebral abscess, when small and in an early stage of development, is situated at the surface of the brain, but as it enlarges it sinks into the substance of the affected lobe. As the diagnosis between a superficial and epitympanic abscess, on the one hand, and a cerebral abscess, on the other, is attended with much difficulty, Von Bergmann holds that it is necessary, in performing an operation, to expose to view both the extradural abscess and the part of the temporal lobe most likely to be involved in the extension of the suppurative process. An operation is described by which the upper and anterior surfaces of the petrosal bone are exposed through a quadrangular opening made in the squamos portion of the temporal bone, just above the line of the zygoma, and between a line in front drawn directly upward to the sagittal suture from the tragus, and a parallel line behind carried upward from the posterior border of the mastoid process. By this wound the mastoid antrum and cells may be opened, if necessary, and the sigmoid fossa be reached. In conclusion, Bergmann alludes to the successful results of the surgical treatment of infective thrombosis of the lateral sinus. Exposure and incision of the sinus, with ligature of the internal jugular vein, proved successful in six out of thirteen cases treated by Jansen, of Berlin. These cases, added to those of Macewen and other surgeons, showed that the operative treatment resulted in recovery in twenty-seven out of forty-five patients. Thrombosis of the lateral sinus, it is pointed out, is often associated with extradural abscess on the roof of the tympanic cavity, and in most cases of cerebellar abscess forms a communication between this collection of pus and the suppuration in the middle ear. In exposing the outer surface of the mastoid process and the bone lying beneath this, search should be made for the mastoid emissary vein. Not only is the orifice a good guide to the sinus, but, in addition, the state of the vessel may help the diagnosis. If it contains pus, suppuration in and about the lateral sinus is indicated; if it be blocked by a thrombus, this will be a sure sign of thrombosis extending to the cavernous sinus. Von Bergmann, attributing much of the recent progress in cerebral surgery to improvements in technical details and in instruments, makes use, in opening the skull, of a circular saw worked by electricity, with which he divides the outer table, while the inner table is divided by the careful application of a chisel.—*British Medical Journal.*

Transfusion of Blood or Infusion of Salt Solution.

In an article under this heading (*Munchener Medicinische Wochenschrift*, April 2, 1895), Von Ziemssen calls attention to the fact that in spite of simplification of method, and in spite of the considerable number of cases which he had been able to report of the curative effect of repeated transfusions of blood in the same individual, the method of infusion of salt solution is given almost uniform preference in surgical practice, and blood transfusion is of little value in comparison. The reason for this is evident—namely, that in the majority of the surgical and obstetrical emergencies in which either infusion or transfusion must be employed, the infusion of salt solution gives a simpler and more rapid means of restoring the lost bulk of fluid in the vessels, and is, therefore, far preferable to the more complicated operation of blood transfusion. On the other hand, the effect of salt infusion is at the best only transitory, and it becomes necessary, according to Von Ziemssen, in most cases to follow it sooner or later by an infusion of blood.

The indications for choosing one or the other method are usually plain. For instance, in the acute anæmia resulting from sudden and profuse hemorrhage, salt infusion is to be chosen. In anæmia resulting from disease of the blood-making organs, on the other hand, in which the percentage of hæmoglobin and the number of red blood-corpuscles falls even below that which results from sudden and profuse hemorrhage, no one would think of resorting to salt infusion. In simple anæmia resulting from profuse hemorrhage in a healthy patient, the restoration of the normal condition of the blood is immediately begun and carried on by the blood-making organs; in pernicious anæmia, etc., the blood-making organs are so diseased as to be incapable of effecting repair of the blood-tissue.

In case of frequently repeated hemorrhage from internal organs, as in typhoid, ulcers of the stomach, etc., salt infusion, although it momentarily restores the heart's activity, leaves much to be desired on account of the fleeting nature of its effects.

It is in such cases as these that Von Ziemssen recommends transfusion of blood. He reports the case of a patient upon whom infusion of a litre of salt solution was performed, *ex indicatione vitale*, with marked temporary improvement. The operation was performed in the evening, and the following morning the patient's condition again became critical, and a loud systolic murmur appeared at the heart's apex. An arm-to-arm transfusion of one hundred and seventy-five cubic centimetres of blood was performed. Immediately after the operation the patient sank very low, but was revived by an injection of camphor, and the percentage of hæmoglobin was from thirty-two to forty per cent. on the following day. The anæmia was rather resistant to treatment, but finally yielded to subcutaneous injections of

sodic arsenite, and in two months the patient left the hospital well.

In Von Ziemssen's opinion, the salt infusion in this case had an excellent but temporary effect, and without the transfusion which followed it, the result would have been fatal. He recommends that in all cases where the effect of salt infusion is temporary, it be followed by blood transfusion, and considers it questionable to wait more than twelve hours before resorting to this procedure. He finds that even during the operation the color of the skin and mucous membranes is improved, and that the subjective feeling of improved strength is quite marked for some hours after the operation; and he considers the good effects of the transfusion to be due as much to the fact that the blood-making organs are excited to activity as that the number of red blood-corpuscles is directly increased.

In our experience with infusion of salt solution, which has been chiefly confined to surgical cases, we have found that in a very large proportion of cases the effect, though always excellent, was but temporary, and that it was necessary, in order to render its effects permanent, to follow it up with copious and repeated enemata of salt solution and stimulants, or even to repeat the operation. In one case of hemorrhage from the ovarian artery following a laparotomy, in which the abdomen was reopened and the ovarian artery tied, the patient being enabled to bear the operation only by means of an intravenous infusion of salt solution which was performed at the same time, the effect of the infusion was marked, and the patient was put to bed with a better pulse than she had before the operation. Three hours later the symptoms of acute anæmia—absolute pallor, restlessness, and complete failure of the pulse—again returned, and infusion was repeated with the same result as before. The result was more permanent, however, the effect being kept up by copious and repeated rectal injections of salt solution, and the case progressed to recovery. Other cases might be cited in which the same treatment was successful. Whether the stimulating effect of a transfusion of blood upon the blood making organs would have led to a better result it is difficult to say. At any rate, the same beneficial effect was noted in these cases from repeated salt infusion that Von Ziemssen found from his blood transfusion.

It is certainly true in these cases that in the first place the vascular system is depleted by the hemorrhage; then the tissues are emptied of serum taken up by the depleted vessels in order to enable the heart to act. The pressure in the vessels is so lowered by the hemorrhage that osmosis takes place from the lymph-spaces into the capillaries, so that the lymph-vessels as well as the blood-vessels are depleted. The bulk of salt solution given at the first infusion fills the blood-vessels temporarily, but is quickly taken up by the tissues, reducing the blood-pressure, and again reducing the volume of fluid with which the heart has to work, and causing the symptoms of acute anæmia to recur. The second infusion fills the vessels again, and the tissues, being already supplied with fluid, do not absorb it from them; hence equilibrium is restored and the effects of the second infusion are permanent.

If a sufficient amount of fluid is injected at the first operation, the second may be unnecessary; but it will always be a good rule to follow up an infusion by copious enemata of salt solution and, if necessary, to repeat the operation.—(Editorial in *Therapeutic Gazette*, October 15, 1895).

GYNECOLOGY.

The Diagnosis of Ureteral and Renal Disease in Women.

Kelly (*International Journal of Surgery*) considers the following methods of diagnosis: Inspection; Catheterization of the ureter; Catheterization of the pelvis of the kidney.

I. *Inspection.*—In the ordinary examination without incision, inspection is limited to the ureteral orifices in the bladder; and in order to see them and to carry out the succeeding steps to be described it is necessary to adopt the following method:

1. The patient is asked to urinate.
2. She is placed in the knee-chest position.
3. A ten per cent. cocaine solution is applied to and within the external urethral orifice for five minutes.
4. The urethra is dilated, when necessary, with a single conical dilator up to nine or ten millimetres in diameter.
5. A simple, cylindrical, vesical speculum, provided with an obturator, is next introduced into the bladder, and the obturator withdrawn, when the bladder at once balloons out with air.
6. The examiner, with a head-mirror on his forehead, now reflects into the bladder a light (preferably electric), held as near the sacrum as possible.
7. By turning the speculum thirty degrees to the right or left and dropping the handle the ureteral orifice comes into view.

The view is limited to this area, and three points are to be noted:

a. The appearance of the orifice and its surroundings. In inflammatory disease of the ureter or kidney this is often red, œdematous, puffed out, mammillated, or even slightly ulcerated. In tuberculous disease descending from the kidney the author has seen the infection thickly strewn over a triangular area, the apex of which was at the orifice.

b. The character of the fluid seen issuing from the orifice will often settle the diagnosis and determine the plan of treatment. In cases of hæmaturia, pyoureter, and pyelonephritis there is no difficulty in picking out the affected side, and seeing by the clear urine issuing from the other side that it is sound. When no discharge takes place it may sometimes be started by making bimanual pressure upon the renal tumor.

c. Normally the urine flows in intermittent jets of a clear, limpid fluid. If one side discharges in this way and nothing comes from the other, there must be some obstructive disease. Pus accumulations, when they escape, are likely to flow in a continuous sluggish stream. Attention is called to the fact that it is possible to catch the urine, as it escapes, directly in the speculum, and take it up for microscopic, chemical, and bacteriological examination without passing a catheter into the ureter.

II. *Catheterization of the Ureter.*—In carrying out this procedure strict attention must be paid to antiseptic details, which may be briefly summarized as follows :

1. Use an antisiptic speculum.
2. Cleanse the ureteral orifice with a pledget of cotton held in mouse-tooth forceps.
3. Have a sterile catheter not contaminated by handling.
4. Avoid contamination of the catheter during the introduction.
5. Place the sterile outer end (protected up to this time with a piece of rubber tubing) in a test-tube to collect the urine as it flows from the ureter without contamination.

Kelly uses three kinds of catheters. That which he prefers is a flexible silk catheter thirty centimetres long and two millimetres in diameter. In introducing the catheter, it is engaged in the orifice of the ureter and pushed in for a distance of twelve or fifteen centimetres. It may be left there to drain in the ureter as long as desirable. He also uses a simple, straight, metallic catheter, which, however, is more liable to bruise the ureter, and a short metallic catheter, which is introduced entirely within the bladder and ureter, and discharges through a fine rubber tube. Both ureters may be drained easily at one time with the flexible catheters.

By noting the time the catheter is put in place and removed the rate of flow may be determined, and by the examination of the urine the relative value of the two kidneys is determined.

III. *Catheterization of the Kidney.*—For this the author has had made renal catheters fifty centimetres long, which are kept sterilized in glass tubing, and when introduced are simply drawn out of the tubing as they are pushed into the ureter. In this way he has drawn pus from the kidney, evacuating a large renal abscess, and by irrigating the abscess cavity through the catheter he has cured a pyonephrosis.

THERAPEUTICS.

Aconite in Children's Diseases.

Prof. Comby, on account of the depressive and sedative effects of aconite, recommends it (*Lancet*) in all spasmodic states, as asthma, the asthmatic attacks of enlargement of the bronchial glands, in whooping-cough and similar states, in stridulous laryngitis, palpitation of the heart and convulsions. It is contraindicated in all states of prostration where respiration is impeded and the heart is about to weaken ; therefore, one should not prescribe it in capillary bronchitis, in bronchopneumonia, pneumonia, in valvular heart affections, in pericarditis and in the collapse of severe forms of infectious diseases. The alcoholic tincture of the root is especially to be used. In adults one may employ aconitine. yet it is an alkaloid which must be given with great circumspection, administering it in doses of a tenth of a milligram, at regular intervals. It should not be used in children's diseases. The tincture of the root is to be given by the drops and never by the gram, and at regular intervals. In a child of two years one may give from five to ten drops ; one of five years, twenty drops in twenty-four hours, while up to ten years thirty drops is a proper dose. No great benefit is to be expected from small doses.

Scientific Teaching as to Alcohol.

At the National Temperance Congress held at Chester, Dr. W. Carter (*British Medical Journal*) discussed the Practical Benefits of Abstinence From a Physician's Point of View. Three broad principal facts, he said, had been firmly established : (1) Those people who entirely abstained from alcohol lived longer than those who used it even moderately ; (2) the abstainer worked harder and longer than the moderate drinker ; and (3) intellectual energy could be well sustained, and was as great without as with alcohol. In a paper on Alcohol as a Narcotic, Dr. McDowell Cosgrave, Professor of Biology at the Royal College of Surgeons in Ireland, stated that during the past few years a number of observers had tested the effect of small doses of alcohol upon the special senses, and had all come to the conclusion that from the very first alcohol acted upon the body as a narcotic and not as a stimulant. The same thing had been found true of the action of alcohol upon the mind. It caused mental processes to be slower but gave the idea that they were really faster. This explained how it was that people often continued to use alcohol when those around them saw that it was doing them harm. A paper, entitled Alcohol, the Antagonist of Hygiene, was read by Dr. Vacher, Medical Officer of Health for Cheshire, who said that the effect of alcohol on the living growing body, as had been shown experimentally, was to make growth less perfect and the system less able to resist the forces that made for decay. He then passed on to consider the question whether alcoholic liquors and the facility given for obtaining them co-operated with the sanitary authority or thwarted its best efforts ; and it was shown that alcohol was the opponent of hygiene. Dr. F. H. Walmsley, Medical Superintendent of the Metropolitan District Idiot Asylum, stated that pauper lunatics in London were increasing at the rate of 500 a year. It was now universally admitted that alcohol was directly or indirectly responsible for more mental and physical incapacity and suffering than any other single known cause of disease. Out of eleven cases of those who became insane, nine ultimately died insane, and of the remaining two, but 1 entirely recovered. The lunacy laws filled a big octavo volume, yet one clause forbidding the marriage of those in whom the taint existed, and another to prevent people driving themselves mad with drink would be worth the whole volume. Dr. Annie McCall, Director of the Clapham Maternity Hospital, suggested that all police should be total abstainers. Dr. Crespi, of Wimbourne, complained of the amount of ignorance which still prevailed amongst medical men on the temperance question ; and Mr. W. S. Caine said that one of the great difficulties was the indiscriminate and ignorant manner in which large sections of the medical profession prescribed alcohol. Mrs. H. Kingsley complained of the way in which country doctors ordered alcohol ; and Mr. Garrard, of Hackney, of the way in which Band of Hope members had broken their pledges owing to medical advice and sickness.

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ORIGINAL ARTICLES.

CHRONIC BRIGHT'S DISEASE.*

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Under this head we may consider three different diseases of the kidneys, each having a pathology of its own; each variety beginning in a particular part of the organ, and extending to the other structures secondarily.

There is, therefore, disease originating respectively in the uriniferous tubules, in the blood vessels, and in the fibrous stroma. That which originates in the tubules is always inflammatory in character. It may be acute or chronic. That which begins in the vessels consists of a peculiar degenerative change, sometimes called amyloid degeneration. That which begins in the stroma proper is by some considered to be inflammatory, and by others to be hypertrophic in character.

We have, then, the inflammatory, affecting the tubules, and secondarily the stroma; the waxy or amyloid, beginning in the vessels; and the cirrhotic, originating in the fibrous stroma.

The inflammatory type may begin acutely, or it may be from the first chronic in character. It is usually caused by exposure to cold, the action of certain drugs, such as alcohol, cantharides, turpentine, copaiba, carbolic acid, chlorate or nitrate of potash, phosphorus and arsenic.

The infectious diseases may also be considered causes; as scarlatina, typhoid fever, typhus or yellow fever, diphtheria, pregnancy, meningitis and erysipelas. In scarlatina it usually develops late, eighteen to twenty days from the beginning of the disease. In most other diseases it will be found in the early stages, and is more the result of the impression made on the nerve-centres than of the specific action of the poison. A burn on the surface, if extensive, sometimes causes nephritis. Inflammatory changes may extend up from the bladder through the ureters and pelvis of the kidney and excite the disease. Micrococci are thought by some to be a cause.

The waxy or amyloid degeneration may be caused by any of the exhausting diseases, phthisis, syphilis, suppuration in the joints, bones, etc.

The cirrhotic or interstitial nephritis may be caused by the long continued use of alcohol, gout, continued mental

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strain; and it is evident that there are many cases, the causes of which are unknown to us.

The anatomical changes in the inflammatory type are, in the first stage, an enlarged and deeply congested kidney; the capsule smooth and transparent, easily removed; the cortex, bluish-red; the malpighian bodies appear like small dots of blood; small spots of blood are almost always found in the cortex; the medullary substance is greatly congested: the organ as a whole is soft and brittle. As the disease advances, the organ becomes more pale, the surface more mottled, the tubules are full of epithelium in a granular state. Later on the organ becomes smaller, sometimes going below the normal size; it is more firm, not so easily broken down. In this stage we have the fibrous stroma involved. Secondary changes may take place in the heart. First, dilatation, quickly followed by hypertrophy.

In the waxy or amyloid form we may have at first what seems to be a healthy kidney, but by the use of iodine we get a reaction, which indicates a change in the malpighian tufts and small blood-vessels. By the microscope the stroma and tubules are found to be normal. Later, the cortex seems to increase and is paler; the stroma more dense than normal, and finally a contraction of the whole organ to sometimes less than half the usual size.

In the cirrhotic or interstitial form we have a disease the progress of which is much slower. In the early stages, the organ is of full size; the capsule more adherent; the surface somewhat uneven and may present cysts; the cortex relatively enlarged by increase of the stroma; no change in the blood vessels or tubules. Later on the organ will be much contracted, perhaps to one-fourth its size; the capsule cannot be stripped off without tearing the organ; the surface uneven and granular and of a reddish color; on section the cortex relatively diminished, dense and firm, almost fibrous. The tubules atrophied, due largely to the contraction, and cysts usually are numerous.

It is well then to remember that in all three forms of Bright's disease we may have, if the case lasts long enough, a small contracted kidney, and that one form will not continue long without developing to some extent the pathology which belongs to one of the other varieties.

The symptoms of the inflammatory type are the decrease in the amount of urine, the abundance of albumen, and the œdema of the skin, usually found about the eye and face in the morning, and somewhat in the lower limbs in the evening, if the patient is out of bed. The urine may, if the disease begins suddenly, contain blood, and usually does contain casts, mostly of the epithelium; the urea is diminished, the specific gravity reduced, unless the quantity of water is relatively small; the pulse is very little quicker than usual and temperature not much elevated; more or less nausea; general feeling of debility with pain in the loins; possibly some tenderness over the kidneys; a slight sense of chilliness, not severe, but continuous and out of proportion to the elevation of the temperature. In cases where there is a sudden suppression of urine, and sometimes where there is not, we have a very severe line of symptoms develop: That of coma, convulsion, or delirium, according to the type it may select; as what we call uremia, may have either of the three types. Often two or more combined, but one will be found more prominent than the other. I have seen cases where the delirium was the only marked nervous symptom, but the convulsive type is most common. The urine contains as crystals, uric acid, urate of soda and oxalate of lime; as formed substances, blood globules, casts of almost all varieties, but, as stated, the epithelium the most common, renal epithelium and round cells.

Later in the course of the disease, the urine is more abundant, does not contain blood, not so many casts, but still remains low in specific gravity, sometimes I have seen it fall to 1001. The dropsy may continue, but there may be a general letting up of the symptoms and the patient feels that he is getting well, and I do not think this an improbable result in this type of the disease, providing we can have the case under complete control for a sufficient time and before the pathology has extended to other than the uriniferous

tubules, as it will do if the disease progresses.

In the waxy or amyloid form the onset is gradual and insidious. The history of some wasting malady, as phthisis, syphilis, the suppuration of bones or joints, followed by an excessive flow of urine of low specific gravity and pale in color, containing little or no albumen at first and but few tube casts, with no dropsy, enlargement of the liver and spleen. The anæmic condition of the blood, gradual failing of the strength of the patient, partly from the diseased kidneys and partly from the condition which gave rise to it, gives us a condition which justifies the diagnosis of amyloid degeneration.

In the cirrhotic or interstitial form the onset is more gradual, and it may exist a long time without manifesting itself by any particular symptoms.

Our attention will often be directed to the kidneys by the dyspeptic symptoms, the frequent headaches, the blindness due to retinitis, and the heart complication. It is found more frequently between the ages of twenty and fifty years. It is rare in childhood. Men suffer more often than women. The loss of vital fluids, malaria, syphilis, abuse of alcohol, and extreme mental exertion, may tend to develop this disease. It is my belief that mental exertion is a much more common cause than is generally supposed. The urine is very scant and contains but little albumen at first, the skin is usually swollen and the heart becomes hypertrophied; there is very little or no general dropsy. The gastric catarrh, diarrhœa, anæmia, dyspnœa, bronchitis, œdema of the lungs, headache and the characteristic retinal condition, make the diagnosis easy.

The prognosis is most unfavorable in this type, death usually being from uremia or some of the complications with the heart or lungs. The following table is submitted by Southey, comprising one hundred and forty-one cases of the inflammatory, and three hundred and fifty-eight of the cirrhotic, as the autopsy showed.

Inflammatory (Parenchymatous.)		Cirrhotic (Interstitial.)	
Dropsy in	75 per ct.	Dropsy in	24 per ct.
No dropsy in	25 "	No dropsy in	76 "
Heart normal in	47.5 "	Heart normal in	6 "
Death from uremia	27 "	Death from uremia	50 "
Phthisis in	8 "	Phthisis in	11 "

The diagnostic symptom in the inflammatory variety would be diminution of urine, abundance of albumen and epithelium, tube casts, diminution of urea and large amount of dropsy.

In the waxy, large amount of urine from the first, little or no albumen, absence of dropsy, amyloid degeneration in other organs.

In the cirrhotic or interstitial, insidious commencement, gradual development of vascular and cardiac changes, in the latter stages increased flow of urine.

The prognosis is grave in all forms, although less unfavorable in the inflammatory than the other varieties. There is more immediate danger in this form, but if it is recognized early and the patient will place himself under proper care, and receive intelligent treatment, there is a chance of his ultimate recovery. The chances grow less as the disease advances.

With the waxy and cirrhotic forms the prognosis is bad from the first, although life may be prolonged for a long time. The treatment of this disease will depend largely on the stage of the disease and the variety that is believed to exist.

In the inflammatory, if in the early stage, the arrest of the disease is the object to be sought. This is best accomplished by the patient placing himself in bed, although he may feel that this is unnecessary. The advantages gained are that the patient is given rest and is protected from drafts and sudden changes which tend to increase the congestion, and the skin is more active. When out of bed the protection of the body by proper clothing is important. The diet should be milk in large quantities; cereals and starches to give variety; meat and eggs should not be allowed. The care in diet and protection of the body, should not be relaxed when the more urgent symptoms pass off, as we may then expect to have a relapse and the disease will progress; but it should be kept up until all trace of the disease has disappeared. This may require months. It is not the intention to require the patient to remain in bed all this time, but to return upon the first evidence of cold or chilly sensation. Counter-irritation should be kept up

over the kidneys. My own choice is dry cups followed by prolonged use of iodine.

The bowels should be kept open but not purged. The kidney in this form should be washed out so as to free the uriniferous tubules.

For the bowels, the compound jalap powder together with calomel acts very well. Elaterium may be used if there is much dropsy, but generally the jalap and calomel will, I believe, answer better. I do not object to giving one grain of the calomel three times a day for three days, then rest from it for one to two weeks, and after a time leave it out entirely. For the kidneys, digitalis together with lemonade, makes, perhaps, the safest and best diuretic.

For the skin, the proper use of pilocarpine and the steam or vapor bath meet the indication. To relieve the inflammation and also to relieve symptoms of urea the use of veratrum viride has been most satisfactory in my hands. The proper use of opium will do great good to relieve the urgent symptoms at the time and bridge it over until you can apply other treatment.

In the waxy form, the most important thing is to seek to remove the cause, if it can be ascertained, and support the patient.

In the cirrhotic form, symptomatic treatment is perhaps the best to follow. I have seen marked improvement follow the relief of a chronic bronchitis and by aiding a weak heart. In this form the diet and care of the body is of the utmost importance. Not from a curative standpoint, but that the patient may enjoy a fair degree of health and his life be prolonged.

THE DIAGNOSIS OF BILIARY CALCULI CONFIRMED BY EXPLORATORY INCISION.*

J. AMBROSE JOHNSTON, M. D., CINCINNATI.

Since the year 1565, when Johann Kentmann, of Dresden, first observed gall-stones, until now the profession has always felt the liveliest interest concerning the subject of biliary calculi. The last decade seems even to have added a new interest, dependent largely upon the success attending operative treatment of this serious and painful malady. Prior to the time when operative treatment was resorted to, as regards the pathology, diagnosis and treatment of the forms of disease produced by gall-stones, medical literature teemed with materials which, from their extent, it is scarcely possible to review. To-day no small space is occupied in our journals by the reports of gall-bladder operations, yet even with this plethora of gall-bladder literature we read with avidity anything that would seem to give us more light on the diagnosis and treatment of a disease of so great moment and prevalence. Consequently, I report the following case, which gives a composite picture of the early symptoms of gall-stone cases, and which exemplifies how, at the variant stages of the disease, the symptoms do not present themselves synchronously, but one manifesting itself one time and one or more at another. It is those cases giving the lighter symptoms that are the most difficult to diagnose, and they are the ones which are the easiest to operate upon successfully.

Mrs. R., aged twenty-two years was seen by me in the spring of 1894. She complained of excessive pain in the right hypochondriac region. Being pregnant at the time several months, the excruciating pain caused premature labor, from which she easily recovered. Some few days after delivery I felt an enlargement at the site of the gall-bladder, which appeared to be two inches in diameter, and was easily palpated on account of her thin and lax abdominal walls. Inquiring into her

*Read before the Cincinnati Obstetrical Society, June 1895.

history, I found that she had been having attacks of periodical pain for four years. Though not jaundiced, I believed there was obstruction in the biliary passages, probably due to biliary calculi, and so informed her. She did not accede to the proposed exploratory operation at this time. A few months later, a recurrent attack coming on, I was called to see her, and at this time could not make out any enlargement at the site of the gall-bladder, but from what I knew of the case I still adhered to my first opinion. I proposed operative interference again, to which proposition she readily acquiesced. The operation was done at the Presbyterian Hospital, October 3, 1894. The exploratory incision, for the confirmation of the diagnosis, was made beginning at the right rib margin and extending downwards along the outer margin of the right rectus muscle for three inches. The gall-bladder was found non-adherent, one inch in diameter, and filled with forty-five stones, which were removed in the ordinary way, and the patient made an uneventful recovery.

There is nothing unusual or extraordinary in this case. It fully typifies the course taken by the majority of gall-stone cases in their early months or years, and, as usually seen by the physician, present only the symptom of pain. It is the meagerness of symptoms—so far as variety is concerned—that permits these cases to run without a positive diagnosis and lose the golden opportunity when the surgeon's knife might avail them much. Had I not seen this case at the time she had the premature labor, and felt what I supposed was the enlarged gall-bladder, I could have been guided in my diagnosis only by the paroxysmal pains she had. It is such cases as this, periodically harassed by pain, unattended by jaundice for an indefinite period, not invariably marked by a distended gall-bladder, that physicians are likely to let go from bad to worse, because they have not a group of symptoms to decide them what to do. In this case, uninterfered with, possibly, the stones would have passed into the common duct, one by one, and have occluded it for so long a period, if not permanently, in their passage that the cholemic condition would inevitably have compromised her prospects for a long and healthful existence. Had we waited long enough, until the stones passed into the common ducts, we could have had the symptoms of jaundice, clay-colored stools and pain; but at what a cost to her chances of recovery, if it became necessary to operate for the removal of stones from that duct, on accouut of their inability to pass onward into the intestine!

There is no question but that an early diagnosis of biliary calculi is desirable when we consider that it is the cases operated upon early, before the stones become wedged into the common ducts, and always attended by jaundice, that give the highest percentage of recoveries. Statistics on the mortality of operations on icteric and non-icteric cases are not yet available that can be called accurate, but so far about 50 per cent. for the former and about 6 per cent. or less for the latter will in all probability be shown to be the ratio in the not distant future.

Exhaustion from recurrent attacks, collapse from excruciating pain, empyema and dropsy of the bladder, with constant danger of rupture; jaundice, progressively interfering with assimilation and nutrition; perforation of the bladder or ducts from ulceration, with its consequences; and, according to some, the liability of the constant irritation causing cancer, are among the dangers which urge us to make an early diagnosis.

Then, aside from the danger to life, there is the ever-constant danger, in those whose symptom is excruciating recurrent pain, of becoming an opium habitué.

Procrastination in the early stages of this trouble often robs us of our only chance to relieve with any degree of safety.

The positive diagnosis of biliary concretions is no easy matter. The most erudite and experienced physician will occasionally err. Cholelithiasis is the possessor of a great number of symptoms, yet it is not possible to name one of them, or a group of them, for the purpose of making a diagnosis which will invariably be positively diagnostic. A stone or stones in the gall-bladder may be perfectly harmless, and give rise to

either no symptoms or mild symptoms, that stimulate those of other diseases in this vicinity. In such cases we cannot make a diagnosis from the clinical history, and have no business resorting to exploratory puncture with the aspirating needle, and very little justification to employ exploratory incision. There are symptoms, however, which, if properly interpreted, indicate biliary calculi, and determine the course that ought to be pursued.

Pain referred to the right hypochondriac or epigastric region abruptly developed, or in some cases preceded by a sense of uneasiness in that locality, may radiate to any part of the body, and is the symptom that most frequently invokes the aid of the physician. Usually there is more or less tenderness over the site of the gall-bladder, but occasionally even pressure affords relief. Most frequently the pain is caused by impaction in the cystic duct; then we have for our symptoms pain and a distended gall-bladder, which can be felt if the walls are not too thick, or if they are sufficiently relaxed. If the impaction is in the common duct we have pain, jaundice, clay-colored stools, and a distended gall-bladder, which can be felt if it be not rudimentary or atrophied and the abdominal walls not too thick; if the obstruction be in the hepatic duct we have pain, jaundice, clay-colored stools, and possibly a distended gall-bladder from an obstruction in the cystic duct. If the obstruction lasts for months or years the organism may become accustomed to its presence, and present very slight or no symptoms; these are the cases which give us a false security—too often leading us into the delusion that our patient is cured, possibly by some new-fangled treatment. If the common or hepatic ducts are occluded, cholemia continues as long as the obstruction exists.

The foregoing symptoms will make a presumptive diagnosis.

Gastralgia, saturnine colic, ulcer of the stomach and intercostal neuralgia have points of analogy in their symptoms which will make an attack of either resemble one of biliary calculi, but usually by scanning the history of the case these diseases will be differentiated.

Having the history and other signs of biliary calculi to guide us, we can bring to our aid for the purpose of diagnosis, palpation, percussion, urinary analysis, the thermometer (Fauconneau-Dufresne says a local elevation of temperature is shown), the stethoscope (in conjunction with palpation), the exploring needle, and exploratory incision.

The history, together with palpation and percussion, must be our chief reliance for making a probable diagnosis; urinary analysis, the thermometer and the stethoscope can give us but little help, and the exploring needle is not of much service.

Sounding for gall-stones with a probe passed through a cannula, or with a fine aspirating needle thrust through the abdominal walls, has been successful in revealing the presence of biliary calculi. This maneuvre is not devoid of danger. Death has been known to follow this, what in the minds of some is deemed "an easy and safe" operation. You who have seen ascitic fluid trickle from the trocar puncture through a thick abdominal wall cannot be made to believe that a fine aspirating needle or trocar can be withdrawn from a distended gall-bladder, which, perhaps, contains pus, without the oozing out into the peritoneal cavity of more or less of its contents, and usually with what result? Even were there no danger of fluid escaping from the gall-bladder, the moment a needle is thrust through the abdominal walls, the liver and gall-bladder descending beneath the diaphragm at each inspiration, may cut themselves on the point of the needle as it projects into the abdominal cavity, thus wounding organs which are very vascular. Too frequently is the gall-bladder so small or atrophied that it would be impossible to tell when you are in it. I have seen a gall-bladder that was only about one inch long, and another case with stones in the common duct, accompanied with extensive adhesions, that seemed to have no gall-bladder, in neither of which cases could one have introduced a needle and diagnosed stones; yet in both cases they were present in the common duct. It would have been just about as easy to have discovered them with the aspirating needle as it would be to find a needle in a hay-stack.

The use of this method might or might not show the presence of biliary calculi, but would not show their absence. Under no condition whatever would I consent to this maneuvre, or look with favor upon it, as long as we have another method which is almost devoid of danger if the rules of asepsis are strictly regarded, and which will reveal the true state of affairs in that vicinity. I have nothing but condemnation for sounding with the aspirating needle.

Pain, attended with a palpable gall-bladder or not, recurring every few weeks or months, and requiring large doses of morphia to subdue it, is a sufficient indication for exploratory incision. Cholemia, which has lasted several weeks or months without abatement, attended with pain or not, attended with a distended gall-bladder or not, is a sufficient indication for exploratory incision to confirm our diagnosis and reveal our duty in the premises. The only positive sign of the existence of biliary calculi in the gall-bladder is to see or feel them through an incision made in the abdominal walls.

Warned by the ever-recurring tormenting pain in the hepatic region, or by jaundice of long duration, cognizant of the uncertainty of subjective symptoms, mindful of the elusiveness of gall-stones in that they leave the gall-bladder when least expected, we can confidently resort to that procedure—exploratory incision—which, if we simply use it to make a diagnosis and obey the laws of asepsis, will be of little danger and clear up what has been only conjectural. Though one should not find stones, he will probably find conditions that will require surgical attention. It is better to occasionally not find what you seek for than to let all obscure cases go without giving them the benefit of exploratory treatment.

The cutting down on a distended gall-bladder, the removal of its contents and the fastening of it in the wound for external drainage, is a simple and comparatively easy operation; and the on-looker often marvels at the ease with which gall-stones are excised. Such cases are the rule, but there are exceptions which try the mettle of the surgeon. Not only must the operator be able to do a cholecystotomy in a distended bladder, but he must know how to dispose of a small bladder which will not come into the wound for external drainage; he must know when and how to remove stones from the ducts, by pushing them onward into the intestine, by extracting them with forceps, and by cutting into the ducts, whose repair with the suture is no small task. Then, from inability to open the ducts closed, by foreign bodies within, by pressure of tumors from without, or by adhesive inflammation or cicatrization of ulcers, the switching of the bile by anastomosis into the small intestine is a problem to be quickly decided.

Though through an exploratory incision, justified by symptoms of gall-stones, no stones are found, other conditions are very likely to be present which demand attention, and no one need censure himself for having made a mistaken diagnosis of gall-stones.

Trional in Internal Diseases.

Spitzer (*Wien. klin. Woch.*, June 6, 1895) reports the results obtained in Drasche's clinic from the use of the drug. It was tried in a great number of cases (25 of which are given in detail), and a dose of 1 to 2 g. given in the early morning after several sleepless nights. Conclusions: (1) Trional is not only a hypnotic for different forms of psychoses, but acts equally well in lung (especially phthisis) and heart cases. (2) Sleep is induced quickly, and continues as a rule during the following night. (3) Some patients remained stupid with sleep even the whole of the next day, but as a rule the sleep resembled that of a normal person. (4) No bad effects on the circulation or respiration were observed in any case. (5) In isolated cases retching, and even vomiting, occurred on waking; this seemed to be due to idiosyncrasy. (6) The results were also excellent in insomnia due to intercostal neuralgia, rachialgia, sciatica, lightning pains of tabes, and even the pain of cancer. (7) The effects approached those of morphine more nearly than of any other hypnotic.

SYPHILITIC LESIONS OF NERVE TISSUE.

THEODORE DILLER, M. D., PITTSBURG, PA.

I have two cases showing symptoms of lesions of syphilis on the nervous system, which I would like to bring before the Society.

Case 1. This patient, a colored man, is twenty-five years of age, with a history of having had syphilitic lesions in 1888. The symptoms of his present trouble began in September, 1894. He first noticed a gradual loss of power in his legs. This loss gradually progressed from September to December, when the loss of power was absolute, and with this loss of motion there was also a progressive loss of sensation, so that in December last, when he was completely paralyzed in both legs, there was also entire absence of sensation in the paralyzed parts. There was also, at this time, a paralysis of the bladder and bowels and loss of sexual powers. Since December there has been a gradual improvement, and now you see he is able to walk with the aid of a cane and there is a fair amount of sensation in the impaired limbs. The sensory involvement came up to about the lower margin of the ribs, or between the margin of the ribs and the pelvis. You will notice his knee jerks are exaggerated. There was no involvement of the arms and no head pains. I think it may be safely presumed that this was a case of transverse myelitis of syphilitic origin. He has been treated by enforced rest and iodide of potash. Altogether, his improvement has been very satisfactory.

(Patient was examined by members of Society—he could not cross his legs without assistance; the knee jerk was exaggerated).

Case 2. This patient I saw for the first time to-day. He is thirty-four years of age—a printer, and was quite healthy as a boy. In 1890, following a chancre, he had a general eruption over his body and an enlargement of the glands. Several weeks later these glands suppurated, and were for eighteen months running sores. He visited Hot Springs, but obtained no relief. He was for a time under the care of Dr. Mudd, of St. Louis, who operated and excised several glands. In the spring of 1892, he began to suffer bi-temporal headaches. These became agonizing, continuous night and day, and kept up until 1894—a period of two years. He became very thin, could never get a good night's rest without getting very drunk. During all this time suppuration was taking place. He weighed ninety-five pounds in the fall of 1894. He states that there were two lumps over the left parietal region. There is no cicatrix now, but a depression here, and another further back, at this point. (Illustrating on patient's head). He was treated with iodide of potash, and after a time these lumps disappeared. They had been present two months. In September, 1894, while the headache was most severe, and while he was drinking to excess, on awakening one morning he noticed a palsy of the left side of the face. From October 1st, 1894, to the 10th, while taking large doses of potash, the headache disappeared, and has never returned. The paralysis of the face grew progressively worse until it became absolute. There was no motion whatever on the left side of the face. In the latter part of October he became unable to swallow; the tongue protruded to the right side, and the uvula hung helpless for a period of five weeks, during which time he could partake of only liquid food. At this time an improvement of the palsy became apparent. He was now taking two hundred grains of the iodide of potash. He has had no treatment since last March. During this time the facial paralysis has remained in *statii quo*. He now is gaining in weight and feels well in every other way. The one inconvenience is the face palsy. He states that both ears have been running for one and a half years, and that he has been deaf in the right ear for two years, and that there has been ringing in his ears for this length of time. The headache left him in October, 1894, and has never returned.

In view of the history of this case, the course which the disease has pursued, the severe agonizing headaches, constant day and night, which disappeared upon the supervention of the palsy, (you will notice that only a few days after the appearance of the left side palsy, the headache completely disappeared), the most probable diagnosis to my mind is gummatous meningitis of the base of the brain, probably multiple growths are present.

There is a distinct cicatrix here behind the ramus of the jaw, and perhaps the posterior branches of the seventh nerve have been injured and may prevent total return of power to this side of the face. There has never been any involvement of his legs or arms, either motor or sensory, at any time.

I think the case is clearly one of transverse myelitis. The total loss of motion and sensation in the legs; the loss of control over bladder and bowels, all occurring in four months; and the non-involvement of any function above the waist, all point to a localized lesion in the lower cord region. The gait is paralytic; and the only point really which favors insular sclerosis is the exaggerated knee-jerk, the ankle-clonus; but we look for both of these symptoms in transverse myelitis.

I am very glad that attention is called to the depression in the bone subsequent on the absorption and disappearance of the growths. It is a point worthy to be observed, and I wish the gentlemen present would step forward and examine the patient, and note these depressions which mark the former locations of the two lumps on his head.

APPENDICITIS ASSOCIATED WITH INTUSSUSCEPTION AND ADHESIVE CONSTRICTION OF THE BOWEL.

J. D. THOMAS, M. D., PITTSBURG.

The patient is a young woman sixteen years of age. She was taken ill the second of this month (September). She was treated by an irregular until the ninth. I saw her on that day, and although the diagnosis appeared to me to be plain, there was a certain amount of tenderness all over the abdomen; the point of the greatest tenderness was in the neighborhood of the vermiform appendix. The patient had been dismissed by the irregular, who stated that the only trouble was "wind." I recognized the gravity of the disease at once. From the ninth until the fourteenth she was under my care. During this time I was a little undecided what to do, some of the symptoms were grave and others were not. One of the greatest symptoms was the rapid pulse, which was between ninety and one hundred. The temperature ranged from normal to not higher than one hundred. During the first two or three days I gave small doses of the mild chloride, but there was no result so far as a movement of the bowels was concerned, and even with the assistance of an injection the fœcal discharges were small. On Saturday morning, the 14th, I found her with a temperature of 98.4°, with a pulse rate of one hundred and four, and fœcal vomiting. This was the first appearance of fœcal vomit, although vomiting had not been a very prominent symptom. The pain was never great during the five days. The patient did not take, during the entire period, over two grains of morphine. On Saturday morning, when I detected the fœcal vomiting, I informed the mother that an operation must be performed as soon as possible. As her husband was not at home, and none of her sons, she said she would consider the matter and send me word as soon as a conclusion was reached. About noon I received word that the girl would submit to an operation. I sent her into the hospital with directions to have her prepared for an operation. At half past four I performed the operation. Now come the peculiar features of the case. After cutting down care-

fully—I say carefully, for I have seen many so-called brilliant operators cut through the abdominal walls with a freedom that made my heart stand still—and after getting down to the peritoneum, and cutting carefully through that, I found the bowel adherent to this tissue and was obliged to carry the incision higher up, and then I succeeded in separating it from the peritoneum. After doing this, there appeared to be a mass of what I supposed to be inflammatory exudate. On lifting this up it proved to be an intussusception. After relieving this intussusception, the adhesions fortunately were not very firm, we found the bowel completely constricted. This constricting band proved to be the appendix. So we had the appendix attached in this manner. The appendix at its apex had become adherent to the small bowel, and the bowel, a knuckle of it, had passed down through the space so formed and become constricted. After separating the adhesions between the appendix and the bowel, the constriction was relieved immediately and the appendix was then removed. We found a few drops of pus in the appendix but no foreign body. In separating the bowel from the parietal peritoneum a certain amount of injury was done to the bowel, and we had great difficulty in stopping this unusual hæmorrhage. Neither pressure nor hot water would do it, but by taking a fine stitch and making a longitudinal pucker, the hæmorrhage was finally brought under complete control. By this time, after washing out the abdomen thoroughly with distilled water, we were ready to conclude the operation; but in replacing the intestines we found the omentum would constrict the bowel at a certain point, and we found it necessary to excise a portion of the omentum in order to prevent this. Whether this last condition had existed prior to the operation or whether it had been produced by the manipulation I am unable to say. The patient is now doing well, but of course we cannot say whether she will eventually recover or not.

The next day, twenty-four hours after operation, no evacuation had taken place. Patient suffers no pain of any consequence, but there is still an elevated temperature and rapid pulse.*

* Sept. 30.—Although patient feels perfectly well, she is still in bed. Wound healed by first intention. No drainage.

I would state that it was one of the hardest matters for me to decide whether to operate or not. I do not come to a conclusion at once. I might say in a general way, if the case is a mild one, do not operate; if it is a severe one, an operation is necessary. In these cases I invariably place the patient on his back in bed and give a few doses of the mild chloride or neutral salts. Morphine only when demanded. Liquid diet. Absolute quiet in bed will often produce gratifying results. Little medication is necessary, as it will generally do but little good. Occasionally I apply poultices. The case should be watched with exceeding great care, and if operation becomes necessary no delay should take place.

Castration for Hysteria.

Gilles de la Tourette (*Archieves de Tocol. et de Gynéc.*, June, 1895) strongly opposes the practice of removing the ovaries for hysteria. The modern idea that the ovary is the seat of that neurosis is as silly and mischievous as the ancient theory that hysteria arose from the womb. Clitoridectomy was odious and unscientific, but did not kill. 1872 was an evil year. Hegar and Battey both performed oöphorectomy for hysterical dysmenorrhœa; Battey's case recovered. Hegar's patient dying "headed the long martyrology of hysterical patients condemned to castration and later to hysterectomy." Charcot especially condemns this unscientific and dangerous operation. He categorically denies the existence of a "genital hysteria;" he even declares that there is no such thing as hysteria, hystero-epilepsy or epilepsy, "of menstrual origin." The catemenia are deranged as a result of the neurosis which they cannot cause. He has never seen a case where the operation could be justified. He has seen many where it had been performed, and the women remained hysterical as before. They had the extra worry caused by knowing that they had lost their ovaries which they could never get back again. Castration for hysteria in the female is as unjustifiable as it would be in the rare cases where hysteria with pain in the testes and scrotum exists in men.

COMMUNICATIONS.

REPORT OF CASES OF SUSPECTED HYDROPHOBIA.*

J. E. RIGG, M. D., PITTSBURG.

I desire to bring before the society the following cases of diseases among the lower animals.

On August 17th, a strange and suspicious dog passed through Wilkinsburg, biting a dog severely, and four cows, one severely, the other three nipped. Sixteen days from that date one cow took ill by a looseness of the bowels, fever, apparent pain in the head, convulsions, dying in thirty-six hours; convulsions excited by attempting to drench. The next day (the 17th) a second cow took ill in pretty much the same condition, dying in twenty-four hours. The evening of the eighteenth day the third cow took ill; did not have any gastro-intestinal symptoms, continuous bellowing, evidence of pain and convulsions, dying in about fifteen to eighteen hours. The dog bitten at the same time on the fifteenth day became stupid, dull and haggard looking; one convulsion that evening. The next day it secreted itself. When found in the evening was in convulsions and was chloroformed. The veterinary surgeon who saw the case pronounced it strychnine poisoning. The dog from whom they received their injuries was lost by those pursuing and nothing was heard of him since.

The milk of the cows was used until they showed evidence of illness. One cow is yet well at this date.

What is the probable diagnosis? What effect of the milk on the consumer and what treatment would you advise in reference to parties who used the milk?

I wrote to Pasteur Institute, New York, in regard to these cases and will read a letter I received.

PASTEUR INSTITUTE,
NEW YORK, Sept. 12, 1895.

DR. J. E. RIGG,
President of the Board of Health,
Wilkinsburg, Pa.

Dear Sir:—There is little doubt in my mind that the cases referred to in your letter of two days ago were hydrophobias, but I do not think there is any danger in the absorption of milk coming from cows infected with the disease unless some abrasions or ulcerations exist in the throat, or in the mouth of the people who use it. Yet I do not think there is much virus in the glands (mammary). Yours respectfully,

PAUL GIBIER.

P. S.—Of course, if the milk is boiled the danger of infection is completely averted.

DR. J. L. SRODES:—As Dr. Rigg has reported this case very fully, I will only add a little more to his remarks, as I followed the matter a little further. At the time of this report the dog had bitten three cows and one dog. Further inquiry showed that after this the dog ran down the railroad and had bitten another dog, three more cows and three horses. Two of the cows are dead and the third was taken sick this afternoon. I intended to watch one of the horses very carefully in order to investigate a little more fully, but the owner had corralled it in a stable which was not any too secure, and it became so violent that he had it shot last night. These animals were all bitten by the same dog referred to by Dr. Rigg. This same dog attacked some Italians who were digging a ditch and was killed by them.

DR. THEODORE DILLER:—I regard this report as a very important one. There is an idea prevalent in the minds of a

*Read before the Allegheny Co. Med. Soc., Sept., 1895.

done very little beyond facilitating a correct diagnosis and rendering operative interference less dangerous. In Jacksonian epilepsy surgical treatment is usually followed by relapse, and can effect a certain cure only in those cases in which the convulsions are due to the compression of a circumscribed cortical motor centre by a tumor, as, for instance, a cyst of traumatic origin. On the other hand, very decided progress has been made in the operative treatment of different forms of intracranial suppuration of otitic origin, such as cerebral abscess, epidural suppuration, infective thrombosis of the lateral sinus, and leptomeningitis. The most dangerous forms of chronic aural suppuration, which is usually excited by a collection of cholesteatoma in the interior of the ear, are indicated by intercurrent acute and subacute attacks, with fetid discharge, and by the presence of polypoid granulations on the tympanic cavity and the auditory meatus. The extension of the inflammation through the thin and carious tegmen tympani sets up pachymeningitis, which, in its turn, gives rise to an extradural or epitympanic abscess, or to an intradural cerebral abscess. The cerebral abscess, when small and in an early stage of development, is situated at the surface of the brain, but as it enlarges it sinks into the substance of the affected lobe. As the diagnosis between a superficial and epitympanic abscess, on the one hand, and a cerebral abscess, on the other, is attended with much difficulty, Von Bergmann holds that it is necessary, in performing an operation, to expose to view both the extradural abscess and the part of the temporal lobe most likely to be involved in the extension of the suppurative process. An operation is described by which the upper and anterior surfaces of the petrosal bone are exposed through a quadrangular opening made in the squamos portion of the temporal bone, just above the line of the zygoma, and between a line in front drawn directly upward to the sagittal suture from the tragus, and a parallel line behind carried upward from the posterior border of the mastoid process. By this wound the mastoid antrum and cells may be opened, if necessary, and the sigmoid fossa be reached. In conclusion, Bergmann alludes to the successful results of the surgical treatment of infective thrombosis of the lateral sinus. Exposure and incision of the sinus, with ligature of the internal jugular vein, proved successful in six out of thirteen cases treated by Jansen, of Berlin. These cases, added to those of Macewen and other surgeons, showed that the operative treatment resulted in recovery in twenty-seven out of forty-five patients. Thrombosis of the lateral sinus, it is pointed out, is often associated with extradural abscess on the roof of the tympanic cavity, and in most cases of cerebellar abscess forms a communication between this collection of pus and the suppuration in the middle ear. In exposing the outer surface of the mastoid process and the bone lying beneath this, search should be made for the mastoid emissary vein. Not only is the orifice a good guide to the sinus, but, in addition, the state of the vessel may help the diagnosis. If it contains pus, suppuration in and about the lateral sinus is indicated; if it be blocked by a thrombus, this will be a sure sign of thrombosis extending to the cavernous sinus. Von Bergmann, attributing much of the recent progress in cerebral surgery to improvements in technical details and in instruments, makes use, in opening the skull, of a circular saw worked by electricity, with which he divides the outer table, while the inner table is divided by the careful application of a chisel.—*British Medical Journal.*

Transfusion of Blood or Infusion of Salt Solution.

In an article under this heading (*Munchener Medicinische Wochenschrift*, April 2, 1895), Von Ziemssen calls attention to the fact that in spite of simplification of method, and in spite of the considerable number of cases which he had been able to report of the curative effect of repeated transfusions of blood in the same individual, the method of infusion of salt solution is given almost uniform preference in surgical practice, and blood transfusion is of little value in comparison. The reason for this is evident—namely, that in the majority of the surgical and obstetrical emergencies in which either infusion or transfusion must be employed, the infusion of salt solution gives a simpler and more rapid means of restoring the lost bulk of fluid in the vessels, and is, therefore, far preferable to the more complicated operation of blood transfusion. On the other hand, the effect of salt infusion is at the best only transitory, and it becomes necessary, according to Von Ziemssen, in most cases to follow it sooner or later by an infusion of blood.

The indications for choosing one or the other method are usually plain. For instance, in the acute anæmia resulting from sudden and profuse hemorrhage, salt infusion is to be chosen. In anæmia resulting from disease of the blood-making organs, on the other hand, in which the percentage of hæmoglobin and the number of red blood-corpuscles falls even below that which results from sudden and profuse hemorrhage, no one would think of resorting to salt infusion. In simple anæmia resulting from profuse hemorrhage in a healthy patient, the restoration of the normal condition of the blood is immediately begun and carried on by the blood-making organs; in pernicious anæmia, etc., the blood-making organs are so diseased as to be incapable of effecting repair of the blood-tissue.

In case of frequently repeated hemorrhage from internal organs, as in typhoid, ulcers of the stomach, etc., salt infusion, although it momentarily restores the heart's activity, leaves much to be desired on account of the fleeting nature of its effects.

It is in such cases as these that Von Ziemssen recommends transfusion of blood. He reports the case of a patient upon whom infusion of a litre of salt solution was performed, *ex indicatione vitale*, with marked temporary improvement. The operation was performed in the evening, and the following morning the patient's condition again became critical, and a loud systolic murmur appeared at the heart's apex. An arm-to-arm transfusion of one hundred and seventy-five cubic centimetres of blood was performed. Immediately after the operation the patient sank very low, but was revived by an injection of camphor, and the percentage of hæmoglobin was from thirty-two to forty per cent. on the following day. The anæmia was rather resistant to treatment, but finally yielded to subcutaneous injections of

sodic arsenite, and in two months the patient left the hospital well.

In Von Ziemssen's opinion, the salt infusion in this case had an excellent but temporary effect, and without the transfusion which followed it, the result would have been fatal. He recommends that in all cases where the effect of salt infusion is temporary, it be followed by blood transfusion, and considers it questionable to wait more than twelve hours before resorting to this procedure. He finds that even during the operation the color of the skin and mucous membranes is improved, and that the subjective feeling of improved strength is quite marked for some hours after the operation; and he considers the good effects of the transfusion to be due as much to the fact that the blood-making organs are excited to activity as that the number of red blood-corpuscles is directly increased.

In our experience with infusion of salt solution, which has been chiefly confined to surgical cases, we have found that in a very large proportion of cases the effect, though always excellent, was but temporary, and that it was necessary, in order to render its effects permanent, to follow it up with copious and repeated enemata of salt solution and stimulants, or even to repeat the operation. In one case of hemorrhage from the ovarian artery following a laparotomy, in which the abdomen was reopened and the ovarian artery tied, the patient being enabled to bear the operation only by means of an intravenous infusion of salt solution which was performed at the same time, the effect of the infusion was marked, and the patient was put to bed with a better pulse than she had before the operation. Three hours later the symptoms of acute anæmia—absolute pallor, restlessness, and complete failure of the pulse—again returned, and infusion was repeated with the same result as before. The result was more permanent, however, the effect being kept up by copious and repeated rectal injections of salt solution, and the case progressed to recovery. Other cases might be cited in which the same treatment was successful. Whether the stimulating effect of a transfusion of blood upon the blood making organs would have led to a better result it is difficult to say. At any rate, the same beneficial effect was noted in these cases from repeated salt infusion that Von Ziemssen found from his blood transfusion.

It is certainly true in these cases that in the first place the vascular system is depleted by the hemorrhage; then the tissues are emptied of serum taken up by the depleted vessels in order to enable the heart to act. The pressure in the vessels is so lowered by the hemorrhage that osmosis takes place from the lymph-spaces into the capillaries, so that the lymph-vessels as well as the blood-vessels are depleted. The bulk of salt solution given at the first infusion fills the blood-vessels temporarily, but is quickly taken up by the tissues, reducing the blood-pressure, and again reducing the volume of fluid with which the heart has to work, and causing the symptoms of acute anæmia to recur. The second infusion fills the vessels again, and the tissues, being already supplied with fluid, do not absorb it from them; hence equilibrium is restored and the effects of the second infusion are permanent.

If a sufficient amount of fluid is injected at the first operation, the second may be unnecessary; but it will always be a good rule to follow up an infusion by copious enemata of salt solution and, if necessary, to repeat the operation.—(Editorial in *Therapeutic Gazette*, October 15, 1895).

GYNECOLOGY.

The Diagnosis of Ureteral and Renal Disease in Women.

Kelly (*International Journal of Surgery*) considers the following methods of diagnosis: Inspection; Catheterization of the ureter; Catheterization of the pelvis of the kidney.

I. *Inspection.*—In the ordinary examination without incision, inspection is limited to the ureteral orifices in the bladder; and in order to see them and to carry out the succeeding steps to be described it is necessary to adopt the following method:

1. The patient is asked to urinate.
2. She is placed in the knee-chest position.
3. A ten per cent. cocaine solution is applied to and within the external urethral orifice for five minutes.
4. The urethra is dilated, when necessary, with a single conical dilator up to nine or ten millimetres in diameter.
5. A simple, cylindrical, vesical speculum, provided with an obturator, is next introduced into the bladder, and the obturator withdrawn, when the bladder at once balloons out with air.
6. The examiner, with a head-mirror on his forehead, now reflects into the bladder a light (preferably electric), held as near the sacrum as possible.
7. By turning the speculum thirty degrees to the right or left and dropping the handle the ureteral orifice comes into view.

The view is limited to this area, and three points are to be noted:

a. The appearance of the orifice and its surroundings. In inflammatory disease of the ureter or kidney this is often red, œdematous, puffed out, mammillated, or even slightly ulcerated. In tuberculous disease descending from the kidney the author has seen the infection thickly strewn over a triangular area, the apex of which was at the orifice.

b. The character of the fluid seen issuing from the orifice will often settle the diagnosis and determine the plan of treatment. In cases of hæmaturia, pyoureter, and pyelonephritis there is no difficulty in picking out the affected side, and seeing by the clear urine issuing from the other side that it is sound. When no discharge takes place it may sometimes be started by making bimanual pressure upon the renal tumor.

c. Normally the urine flows in intermittent jets of a clear, limpid fluid. If one side discharges in this way and nothing comes from the other, there must be some obstructive disease. Pus accumulations, when they escape, are likely to flow in a continuous sluggish stream. Attention is called to the fact that it is possible to catch the urine, as it escapes, directly in the speculum, and take it up for microscopic, chemical, and bacteriological examination without passing a catheter into the ureter.

contradict the assertion of any one that there is no such a thing as hydrophobia, but I think the evidence is pretty strongly in favor of it. I think we should be very careful in condemning the evidence of responsible investigators, and furthermore, we should be somewhat guarded in our public utterances on account of the effect they may have on a nervous public. I have seen a few cases simulating hydrophobia but not quite so marked as the cases reported here this evening from Wilkinsburg. I have seen a case when there was a flock of sheep bitten and they all died. I am not able to tell how many there were. I know of another case where there was a cow and a calf bitten and they died. The dog in this latter case belonged to a family in which malignant diphtheria was raging. At the time, I was a mere boy and every one said that these cases were hydrophobia and I did not have any other idea at that time; but when I look back and take all the circumstances under consideration, I am not as sure that the diagnosis was absolutely correct. I have seen on several occasions lower animals affected with malignant diphtheria and where their actions and death resembled that of hydrophobia.

Another case within my recollection which seems to have some bearing on this subject is as follows: An Englishman got into a fight with an American and in the fight he bit off the thumb of the American. The latter soon after was taken with convulsions and died. We would not call this a case of hydrophobia. Another similar case occurred a short time ago in which a boy had injured his foot and within a few days after he took convulsions and died. My argument is, that every case of death after injury from a bite of a dog or otherwise, or every case of convulsions from bite or other injury, should not be indiscriminately classed as hydrophobia. We want to study and investigate and arrive at the truth of this matter. I wish to get all the information possible, but I think one should not be too hasty in diagnosing a case as hydrophobia.

Dr. J. L. Srodes:—I do not remember of Dr. Rigg stating that the cases reported by him were hydrophobia. I do not think either Dr. Rigg or myself mentioned hydrophobia. I have not arrived at a diagnosis myself. I confess I have been skeptical with regard to hydrophobia, but the fact remains that we have authentic reports from time to time of animals bitten and dying from the results of these bites, and in this case, so far as I am concerned, I find people who saw these animals bitten. I was not there myself, but eye-witnesses saw the dog bite all of the animals, with the exception of one of the horses. I do not know whether these were cases of hydrophobia or not, but you have had the histories recited this evening and the results. It is said that "a rose by any other name would smell as sweet." You may call it what you please, but the fact remains that these animals were violently poisoned by the bite of this dog and the results were just as sure as if you called the fatal disease hydrophobia.

Dr. J. E. Rigg in concluding said:—We have not been able to find out anything about the dog. No one has recognized the dog as belonging in or about Wilkinsburg. We have not been able to find any one to claim him. We had to make our investigations in a quiet manner as I did not deem it advisable to let the matter get into the newspapers or into the mouths of the people, and we counseled secrecy to all with whom we talked. I tried to avoid creating any excitement.

In regard to whether or not such a disease as hydrophobia exists I do not care to attempt to state. I simply presented these cases to the Society for discussion: I might in this connection relate a peculiar case which occurred in Baltimore. An old man and his wife kept house alone. They owned a large dog. For several days the dog had been indisposed and rather quiet, despondent, had lost his vim. One morning the man went to feed him and was bitten. The dog appeared very vicious and was getting the best of the old man. His wife came to the assistance of her husband and she was bitten. The dog was shot by one of the neighbors shortly after. Sixteen days after this the old man was taken with a disease and was seen by a number of Baltimore physicians. The next day the wife became ill. Both had to be forcibly confined to

bed and they died within forty-eight hours. Of what disease did this old couple die?

In the case reported to me this evening I did not proffer a diagnosis. I gave the diagnosis of the Pasteur Institute of New York. There was little doubt in the mind of the physician in charge of that institution. Now the question is simply this, was it hydrophobia or was it some epidemic or endemic disease affecting these animals? Animals surrounding the ones which were bitten were not affected. They did not suffer. The disease was evidently caused by a specific poison given off by the dog. I do not think we should ignore this fact.

RECENT ADVANCES IN BACTERIOLOGY WITH SPECIAL REFERENCE TO FOOD.*

M. V. BALL, M. D., PHILADELPHIA.

Bacteriology is, comparatively, a recent science. Only within the last ten years has it received any special attention, and within this time it has been given a place in the medical colleges and become recognized as an important department of knowledge.

Municipalities are forming laboratories for bacteriological work, and governments are instituting, on a large scale, researches, which must eventually be of great service to mankind. It is hardly to be expected that this subject should as yet be the common property of any but those who have made it a special study, and, therefore, a few words as to the nature of bacteria will not be out of place here.

Bacteria—from the Greek, meaning little or minute *rods*—is a term applied to various forms of organisms, microscopic in size, closely allied to the lower types of fungi and algæ; usually containing no chlorophyll; capable, in many instances, of propelling themselves with swift motion through the liquids in which they are found, and possessing, for this purpose, small cilia or flagella, like other types of microscopic plants.

They are very minute, requiring for their detection powerful lenses. Some idea of their size may be obtained from the statement that in the space of an inch from 15,000 to 20,000 can be placed side by side; but, growing together in large numbers as they do, such aggregations or colonies can readily be seen with the unaided eye, though the individual members of these colonies cannot be recognised.

Bacteria are neither yeasts nor moulds, though possessing some of the characters of both.

The name, "bacteria," is not a good one, since other than rod-shaped organisms are collected under this group. Micrococci are globular or spherical bacteria; bacilli are the rod-shaped bacteria; and spirilli are spiral formed or twisted bacteria. The colonies of one form are not to be distinguished from the others, but under the microscope the difference in shape is readily made out.

Bacteria are quick breeders; they multiply very rapidly. From one or two germs thousands are obtained in the course of a few hours. Some one has made the calculation that a single germ, if uninterrupted in its growth, would fill an ocean with its progeny in five days; but, fortunately, it digs its own grave by the poisons it generates, and so puts a limit to its growth. Some require several days before germination occurs. Two kinds of growth are known; one, in which reproduction is a process of fission or segmentation—one bacterium dividing itself into two, and each of these again sub-dividing—in reality, a continuation rather than a reproduction. And a second kind, known as sporulation. The germ gives rise to a spore, the spore then takes on a separate existence and, when the conditions favor-

* A lecture delivered before the Franklin Institute, 1895.

able to maturation exist, it gives rise to a new germ.

Both forms of growth are utilized by the same bacterium. Under ordinary conditions it multiplies by fission when a permanent form is advantageous, or, as some think, when the soil is particularly rich, it produces spores. Spores have not been found in all bacteria; those possessing them are very resistant to all physical and chemical agencies, and withstand a high degree of heat without being destroyed.

For the different bacteria different conditions are necessary. Just as different plants require different kinds of soil and temperature, so these minute plants react differently and demand for their growth various surroundings. Some are not at all particular, and flourish on any sort of soil. They are like weeds that grow without attention; others again are as sensitive as hothouse plants, and require very carefully prepared media and a suitably regulated temperature. While some species demand a plentiful supply of oxygen, others grow only when this is excluded. Sunlight is usually destructive; an alkaline medium is better tolerated than a neutral one, and acids are usually harmful. Moisture is necessary to growth.

Bacteria are not only disease-producers, they manufacture a host of products beneficial and essential to life. Life itself depends, in a great measure, upon the action of these minute plants, which transform the complex molecules into their elements and make them fit for assimilation. If we could separate the industrial germs from the pathogenic or disease-producers, and domesticate the former, while we drive the latter out of existence, life would be more worth the living. This is gradually being attempted. Scientists are pointing out to us the properties of individual varieties, and showing us the methods of cultivation; while hygienists and therapeutists are doing all they can to exterminate the destroyers of life; so that we can already see how, in a few years, cholera will be a rare disease, and tuberculosis will no more be counted as the cause of one-fifth of all deaths.

What advances, if any, have been made in recent years as relates to the subject of *foods?* This is the topic I have been asked to consider: "Bacteria in their relation to food?"

First of all, I desire to take up the most important of foods, namely, *water*. Water is a food because it is necessary to sustain life, and considered in this sense air might also be classed as a food. But whether or not we call water a food, there are other reasons sufficient for us to make it a matter for consideration here.

Formerly a good water was one which came up to a certain chemical standard. The amount of chlorides and nitrates was determined, the hardness was computed and the total amount of solids ascertained. If a water did not contain more than 1 grain of chlorine per gallon, it was deemed potable. To-day, while chemical analysis still has an important place in the examination of water, it must go hand-in-hand with the biological or bacteriological analysis, and we must know what sort of living organisms inhabit or are to be found in the specimen in question.

In the early days of bacteriology much stress was laid upon the number of bacteria found in a given quantity of water, and water containing more than 500 colonies to the cubic centimeter was deemed unfit for drinking, but now it is not so much the quantity as the quality of the bacteria that is looked for. One typhoid bacillus in a gallon of water is more dangerous than one million ordinary water bacteria; in fact, it would render the water impotable, while the latter would be harmless. Thus, the water analyst of to-day must be a competent bacteriologist as well as chemist; and to be a bacteriologist means a pathologist as well, for, in the investigation of bacteria, animals must be used for experiment, and the nature of the diseases, caused by the bacteria, must be known to the experimenter.

As in the earlier chemical analyses, the chlorine itself was not considered dangerous, but simply one of the indications of fæcal contamination, so in the bacterial examination, the presence of certain harmless germs may indicate dangerous contaminations. For instance, the presence of the bacilli commonly found in human fæces, which in themselves are non-pathogenic, would, of course, lead one to infer that human

sewage had become mixed with the water supply.

The methods for the detection of typhoid bacilli in drinking-water leave much to be desired. The examination is often undertaken too latè, when the bacilli are no longer present, or have been destroyed by the ordinary water bacteria. Typhoid bacilli do not live long in ordinary drinking-water; and yet, if the water be contaminated with them, a whole city or district can become infected in a short time, and when suspicion is directed to the water the germs have disappeared. To a less degree, this is likewise true of the cholera spirillum, which acts so quickly and is so deadly, and which usually is spread through the drinking-water.

A method lately described, and which promises success, is to take a large quantity of the suspected water (200 cubic centimeters), and add to it 2 grams of peptone and 2 grams of chloride of sodium. Place this in the incubating oven, and, if cholera germs are present, they will multiply rapidly, so that they can readily be detected in the course of ten to twelve hours.

Bacteric examinations have been most useful in the testing of water filters, "germ-proof" filters, etc. Several filters are now in the market, which claim to be germ-proof; that is to say, which are supposed to prevent the passage of bacteria through the very minute pores of the filter. These filters are made of baked clay, infusorial earth, porcelain, etc. As a rule, they can deliver a germless water only for a few days in succession, when, owing to the activity of the bacteria which have collected on the surface of the filter cylinder, the pores are penetrated by the growth, and more bacteria than usual find their way into the water. This, in some cases, can be prevented by a careful cleansing, every few days, of the filter tube. All tubes are not alike, and some afford no protection at all, though they clarify the water by keeping out the grosser particles of dirt.

Filters are best tested by adding to the water, before filtration, some well-known bacterium (usually the red pigment-forming and rapid-growing *Bacillus prodigiosus*) making cultures before and then after filtration. If, under suitable precautions, the germ is found present in the filtered water, the filter is imperfect. In the testing of large filtering plants, where it is not expected that the water will be perfectly free from the germs, quantitative methods must be used, in order to tell what percentage of bacteria is left behind.

These large filtering plants are in use in several cities, and, it seems to me, they are of doubtful value only. It is true, the water is more pleasing to the eye, and, for toilet and laundry purposes, more valuable; but if the water is contaminated with disease germs, there is no surety that they will be among the 50 per cent. filtered out. They are just as liable to pass through as the others, and such a water is not safe. From the sanitary point of view, filtering plants are only valuable when the water is uncontaminated by human sewage; and to erect such a plant in our city, without paying any attention to the source of our water supply, and even allowing it to be polluted along its whole course, will hardly reduce the death rate, though it may add to the æsthetic quality of the water.

On an average, 500 deaths occur every year in this city from typhoid fever. This means at least 6,000 cases. From an economical point of view, the persons affected are the most valuable members of society, chiefly young adults between the ages of twenty and forty. The expense, in loss of time, medical attendance, etc., is at least $100 for each case, a total cost of $600,000 yearly from this one disease, to say nothing about the loss of life; and all because we are obliged to drink the sewage of half a dozen towns above us, and the draining from graveyards and pigsties along the banks of the Schuylkill.

And while we are thus treated by the cities above us, we send our sewage to the towns below. Some strict measures must be put into practice, which will prevent this pollution of our drinking-water.

The second important article of food, with which bacteriologists have busied themselves, is *milk*. A good milk must contain a certain amount of solids and fat, but it can be adulterated with far more harmful matters than water, and these other adulterations are not so readily detected.

A few hours after milking, ordinary

milk has been found to contain 1,000,000 germs to the cubic centimeter. How did these get in?

If the udders of the cow are not kept clean, the first flow of milk will wash the dirt into the milking-pan. If the man who milks the cow is uncleanly in his habits, using dirty hands in the operation, the milk receives this dirt. If the stall is the place for milking, and other animals are moving about, the dust raised falls into the open pail and contaminates the fluid; and, finally, in the transportation from the farmer to the collector, from the dealer to the customer, a hundred opportunities present themselves for the entrance of bacteria, which, when once in, thrive abundantly, the milk being a rich and suitable soil for their growth.

In the markets of Halle, Berlin and Leipsic, Ranke succeeded in finding, in the milk exposed for sale, considerable quantities of cow-dung, which, of course, greatly increased the number of germs to the cubic centimeter—in one case up to 169,000,000.

Bolle, the milkman of Berlin, who sells 60,000 quarts of milk daily, has endeavored to make his large establishment conform to scientific requirements. He has a competent bacteriologist, who makes frequent examinations of the product. The milk is obtained from such dairies only as are under his inspection. Separate examinations are made of the different herds, so as to trace disease to its proper source. The collected milk is filtered each day through immense sieves of gravel, which have first been subjected to a high degree of heat in order to sterilize them. The milk is forced through from below upwards, and collected in proper vessels. Four thousand quarts pass through such a filter in one hour. By this means the dirt is removed and with it about 50 per cent. of the bacteria present.

While this filtered milk keeps longer than the unfiltered, and is more readily sterilized, it is just as dangerous if disease germs were originally present, since, as was stated above, in connection with the filtration of water, the disease germs are just as likely to be among the 50 per cent. that pass through as to be among those that remain.

In order to render milk completely sterile it must be subjected to such a degree of heat as will coagulate the caseine and make the product undesirable in other ways. If, however, great care be exercised in the milking, and sterilization be carried on at once or shortly after, a very moderate degree of heat will be sufficient to make the milk entirely sterile.

One of the bacteria that is often found in milk has very resistant spores, and, therefore, if milk becomes contaminated by exposure to the dust and dirt of the air or stall, ordinary warming or heating, as is done when milk is Pasteurized (so-called sterilized milk), will not suffice to destroy these spores.

Milk is often sold to us in bottles, and one would imagine that such a product was reasonably clean; but this bottling is done in a very careless way, often in the street by some ignorant delivery boy, while the street sweeper is raising clouds of dust, some of which lodges in the exposed milk.

In one dairy in Dresden, Germany, all the milk comes from stall-fed or dry-fed cows, experience having shown that such cows give a product that is less variable, and contains fewer germs, and sours less speedily than when they are fed on fresh grass. Great care is taken in the milking, and especial attention is paid to the cleanliness of the employees. After the milking the milk is placed in coolers, where it remains two hours, at a temperature of 10° C. Then it is put into a centrifuge, in order to separate the dirt that might accidentally have fallen in. It is now warmed up to 65° C. (Pasteurized), and collected in half-pint sterilized bottles, and the filled bottles again heated for one hour and three-quarters, at 65° C., and quickly cooled. Such milk is reasonably sterile, and the method is the only one to be recommended.

Unless all these steps are followed the milk cannot be considered sterile.

What danger is there in milk from tuberculous cows? This is a question which, just at present, is receiving considerable attention.

Tuberculosis is very frequent among cattle. In the slaughter-houses of Berlin, out of 142,000 head of cattle, 21,000, or 15 per cent. were found to be tubercular. In all Prussia 10 per cent. of all

the cattle slaughtered annually are found to be affected with this disease. Some veterinarians claim that 30 per cent. of all cows are infected, and that a herd cannot be found that is entirely free from the disease. From this one can readily see the importance of this question. In New York City 900,000 quarts of milk are consumed daily. Consumption is likewise a very common disease, causing from one-third to one-fourth of all the deaths among adults, and many, if not the greater number, of the diseases of children are tubercular in origin.

Is the cow an enemy to man? Are we warranted in accusing the milk of consumptive cows as being the cause of consumption in man? The last word has not yet been said on this subject. We can only give the opinions of authorities, the present beliefs gained from the knowledge at hand; and these are that, if the udders of a cow are unaffected, if there is no local tuberculosis, no bacilli are to be found in the milk, the milk may be considered safe. Yet, later investigations have shown that the toxic principles of bacteria find their way into the milk, that the milk of an animal rendered immune to diphtheria or tetanus has the same properties as the serum of the blood, and can protect other animals. If this is uncontroverted, then the milk of tuberculous or consumptive cows may have within it the products of the tubercle bacilli, and such milk may have the same effect upon the human organism as these products obtained artificially, or from cultures outside of the body. The discussion on the benefits or ill effects of *tuberculin* has not yet been closed, and it is impossible to say, therefore, whether such milk, *i. e.*, milk containing tuberculin, is positively harmless or dangerous.

In Paris all cows whose milk is offered for sale must be tested with tuberculin to prove their freedom from tuberculosis. Our own board of health has strongly advocated a similar test.

Tuberculin has been found reliable in the greater number of cases; *i. e.*, if an animal showed signs of temperature rise after the injection of the tuberculin, the disease has always been found present; but the disease has been found when no rise has occurred, so that it is a positive test only. Tuberculosis is present whenever there is a rise of temperature, but it is not necessarily absent if no reaction occurs.

Because tuberculosis is so very frequent, because 2,700 deaths of adults between 15 and 45 occur every year in this city alone from this one disease, it behooves us to try every measure that holds out the slightest chance of success in reducing this awful mortality, and, therefore, if only as an experiment, it would be worth the time and money to destroy every suspicious animal, and thus prevent the sale of all milk save that obtained from perfectly sound cows. Any reduction in the death rate from this disease will be a step in advance, and our efforts should be directed to this end at all cost.

If the milk of consumptive cows is dangerous, then cheese and butter made from such milk is likewise dangerous, and the sale of such should be equally guarded against.

In Germany, butter has been made from sterilized milk by the addition of pure cultures of certain bacteria, which have the power of coagulating the milk. Such butter has a constant flavor, and does not deteriorate so quickly as butter produced in the ordinary way.

To summarize in regard to milk, we can say that (1) a careful inspection of the dairy; (2) a close examination of the cattle; and (3) cleanliness in the transportation and sale, must be rigorously enforced to safeguard the public health.

As regards meat, little has been said or done. Meat is rarely used in the raw state, and cooking generally renders ineffective the germs likely to be found present.

In the cities of Europe, careful inspection is practiced at the abattoirs, and meat from diseased cattle is excluded or sold under restrictions. Meat-shops are likewise kept very clean, and the meat is seldom exposed in filthy warehouses. In our own cities some of the meat offered for sale on the stands and in the street shops is most unfit for food—some of it, indeed, in a state of putrefaction. Some cities have laws which make such meat liable to seizure, but these laws are seldom operative.

The advances in fermentation deserve attention, for, though they are not, strictly speaking, connected with our subject, yet so closely are the yeasts related to bacteria, and so similar are the methods of cultivation, that any discoveries in the one field are sure to be of value in the other. Bacteria have always been a disturbing element in industrial fermentations, and expensive methods have been resorted to, to prevent the entrance of disease germs—disease, here, meaning impure or improper germs.

The yeasts were formerly considered as few in number—as alcohol-producers and non-alcohol-producers—no serious efforts were made to obtain pure cultures, but the mashes and brews were kept under such conditions that the foreign germs were prevented from growing or multiplying. Beer was stored in ice-cellars, whiskey was subjected to special temperatures, and other elaborate measures were used which now can be dispensed with if we start with pure cultures of yeasts at the beginning, and avoid the entrance of impurities from air, water, etc.

In Denmark, Hansen (and from him a school has originated) pays great attention to the cultivation of pure yeasts. Brewers can obtain from the laboratories such pure cultures and thereby insure a definite alcoholic strength, a constant flavor, and a product that will not deteriorate, even under varying conditions of temperature, etc.

By experimenting with different combinations of yeasts, various degrees of bitterness and different aromas can be developed.

Wines depend very largely for their bouquet, not so much upon the grape as upon the particular germ or germs used in the fermentation of the juice. Experimenters have obtained, with the same kind of grape, a half-dozen different wines by using as many different yeasts. As the pigment yeasts produce various colors, so the yeasts used in fermentation give rise to various ethers, and these ethers give the wine its peculiar bouquet.

We should expect to obtain a Rhine wine from a New Jersey grape by using the yeasts which are common in the Rhine region, or on the Rhine grape. Even out of apple a good-tasting wine has been produced by the use of particular cultures of yeast.

These researches have revolutionized German brewing, and the large breweries now have competent bacteriologists in their employ, who attend to the cultivation of their yeasts.

The spaces or holes peculiar to certain *cheeses* are due to the evolution of gases during the ripening process. These gases are produced by certain bacteria, and by using pure cultures of these gas-forming bacteria in the manufacture of cheese, these air-spaces will always occur. The odor of cheese is likewise due to bacteria, and special flavors can thus be obtained at will by using the particular germs.

Bread made from pure yeast will be found to be more digestible, to be lighter and to possess a sweeter flavor. Too little attention has been paid to this in baking. Mixtures of yeasts and bacteria are used, and the baking powder or the flour is blamed for poor results. Sour bread is usually due to a poor quality or impure kind of yeast. The soil out of which we obtain such important foodstuffs has been studied bacterially and has been found to contain peculiar germs, which are all necessary to the growth of the plant. These are the so-called nitrogen-forming bacteria.

They convert the nitrates into nitrites, the oxidizers of organic material. more necessary to the well-being of vegetable life than anything else. Instead of using tons of fertilizers, the agriculturist of the future will cover his fields with cultures of the nitrogen germs and obtain better results. We will even have special germs for special plants. The science of agriculture is yet in its infancy, if we may believe the promises held out to it by bacteriology. Even at present the agricultural colleges are equipping themselves with laboratories for bacteriological research.

Thus I have tried to show that the recent advances in this science are as nothing compared with what may yet be expected; that in these germs, microbes and bacteria, mankind has deadly foes and also important friends; that we must do all we can to rid ourselves of the former and make the latter our willing slaves.

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PHILADELPHIA, SATURDAY, NOVEMBER 23, 1895.

EDITORIAL.

"A DOCTOR OF THE OLD SCHOOL."

At the recent dinner of the Liverpool Medical Institution, the Rev. John Watson, better known to fame as "Ian Maclaren," the author of "Beside the Bonnie Brier Bush," spoke nobly of the medical profession. Remarking that there were two things he wished to say, he went on:

"One is to answer a question that has been often and fairly asked—Was there ever any doctor so self-forgetful and so utterly Christian as William MacLure? To which I am proud to reply—on my conscience not one man but many in Scotland and in the south country—I will dare to prophesy also across the sea. It has been one man's good fortune to know four country doctors, not one of whom was without his faults—Weelum was not perfect—but who each one might have sat for my hero. Three are now resting from their labors, and the fourth, if he should ever see these lines would never identify himself.

"Then I desire to thank my readers, and chiefly the medical profession, for the reception given to the doctor of Drumtochty. For many years I have desired to pay some tribute to a class whose service to the community is known to every country man, but after the tale had gone forth my heart failed. For it might have been despised for the little grace of letters in the style, and because of the outward roughness of the man. But neither his biographer nor his circumstances have been able to obscure MacLure, who has himself won all honest hearts and received afresh the recognition of his more distinguished brethren. From all parts of the English-speaking world, letters have come in commendation of William MacLure, and many were from doctors who had received new courage. It is surely more honor than a new writer could ever have deserved, to receive the approbation of a profession whose charity puts us all to shame."

This is the heartfelt tribute of a discriminating and appreciative man. It reaches the medical profession through the editorial columns of the *Practitioner*. It so happened that immediately after

seeing this acknowledgment in the *Practitioner*, Mr. Watson's book itself came under the notice of the REPORTER. "Beside the Bonnie Brier Bush" should be read by every physician in this country. There are thousands of medical men in the United States whose lives, although they themselves may not recognize it, might have furnished the inspiration of these sketches of a "Doctor of the Old School", and to whom the "Bonnie Brier Bush" would be as "the shadow of a great rock in a weary land."

A few changes in the setting, and many a reader of the REPORTER will recognize passages from his own life, and he may appropriate to himself the sympathy and gratitude which "Ian Maclaren" so effectively puts in words for a community, which felt the deeper because of its inability to adequately give expression to its feeling. No country practitioner, however discouraged, will fail to find comfort and renewed inspiration from the simple account of the life and labors of the obscure Highland practitioner, "Weelum" MacLure.

Any physician will recognize that the sketches are from life, and are true to nature. Here is one glimpse of the Highland doctor:—

"No one sent for MacLure save in great straits, and the sight of him put courage in sinking hearts. But this was not by the grace of his appearance, or the advantage of a good bedside manner. A tall, gaunt, loosely made man, without an ounce of superfluous flesh on his body, his face burned a dark brick color by constant exposure to the weather, red hair and beard turning grey, honest blue eyes that looked you ever in the face, huge hands with huge wrist bones like the shank of a ham, and a voice that hurled his salutations across two fields, he suggested the moor rather than the drawing-room. But what a clever hand it was in an operation, as delicate as a woman's, and what a kindly voice it was in the humble room where the shepherd's wife was weeping by her man's bedside. He was "ill pitten thegither" to begin with, but many of his physical defects were the penalties of his work, and endeared him to the Glen. That ugly scar that cut into his right eye-brow and gave him such a sinister expression, was got one night when Jess slipped on the ice and laid him insensible eight miles from home. His limp marked the big snow storm in the fifties, when his horse missed the road in Glen Urtach and they rolled together in a drift. MacLure escaped with a broken leg, and the fracture of three ribs, but he never walked like other men again. He could not swing himself into the saddle without making two attempts and holding Jess's mane. Neither can you "warstle" through the peat bogs and snow drifts for forty years without a touch of rheumatism. But they were honorable scars, and for such risks of life men get the Victoria Cross in other fields. MacLure got nothing but the secret affection of the Glen, which knew that none had ever done one-tenth as much for it as this ungainly, twisted, battered figure, and I have seen a Drumtochty face soften at the sight of MacLure limping to his horse."

"When the reapers in harvest time saw a figure whirling past in a cloud of dust, or the family at the foot of Glen Urtach, gathered round the fire on a winter's night, heard the rattle of a horse's hoofs on the road, or the shepherds, out after the sheep, traced a black speck moving across the snow to the upper glen, they knew it was the doctor, and, without being conscious of it, wished him God-speed."

And here is another glimpse which brings together, with sharp contrast, two types of the medical profession, and to the credit of both.

"A figure received Sir George on the Kildrummie platform, whom that famous surgeon took for a gillie, but who introduced himself as 'MacLure of Drumtochty.' It seemed as if the East had come to meet the West when these two stood together, the one in travelling furs, handsome and distinguished, with his strong, cultured face and carriage of

authority, a characteristic type of his profession; and the other more marvelously dressed than ever, for Drumsheugh's top coat had been forced upon him for the occasion, his face and neck one redness with the bitter cold; rough and ungainly, yet not without some signs of power in his eye and voice; the most heroic type of his noble profession."

To reach a doomed woman, the famous surgeon and the obscure physican had a perilous trip, which involved the fording of a stream during a winter flood.

"When they neared the body of the river, MacLure halted, to give Jess a minute's breathing.

'It'll tak ye a' yir time, lass, an' a' wud raither be on yir back; but ye never failed me yet, and a wuman's life is hangin' on the crossin'.

"With the first plunge into the bed of the stream the water rose to the axles, and then it crept up to the shafts, so that the surgeon could feel it lapping in about his feet, while the dog-cart began to quiver, and it seemed as if it were to be carried away. Sir George was as brave as most men, but he had never forded a Highland river in flood, and the mass of black water racing past beneath, before, behind him, affected his imagination and shook his nerves. He rose from his seat, and ordered MacLure to turn back, declaring that he would be condemned, utterly and eternally, if he allowed himself to be drowned for any person.

"'Sit doon,' thundered MacLure; 'condemned ye will be suner or later gin ye shirk yir duty, but through the water ye gang the day.'

"Both men spoke more strongly and shortly, but this is what they intended to say, and it was MacLure that prevailed."

The surgeon does not appear to best advantage in a flooded river, but he does his work successfully, and then vindicates his personal and professional character worthy of his great reputation.

"When the doctor placed the precious bag beside Sir George in our solitary first next morning, he laid a cheque beside it and was about to leave.

"No, no," said the great man. "Mrs. Macfayden and I were on the gossip last night, and I know the whole story about you and your friend.

"You have some right to call me a coward, but I'll never let you count me a mean, miserly rascal," and the cheque with Drumsheugh's painful writing fell in fifty pieces on the floor.

"Give's another shake of your hand, MacLure; I am proud to have met you; you are an honor to our profession."

Many incidents are given—not as extraordinary deeds, for they are but everyday experiences in the lives of practitioners of the "most heroic type"—which show how thoroughly Mr. Watson understands medical practice in country districts, and his keen appreciation of this life of self-sacrifice makes his beautiful tribute to the country doctor the sweeter recompense for work too often unacknowledged even with thanks.

But the book itself must be read to feel the warmth and tenderness of Mr. Watson's heartfelt expressions of sympathy and gratitude to the "profession, whose charity puts us all to shame."

Toxicity of the Aqueous Part of the Breath.

Livierato (*Arch. Ital. de Biol.*,) investigated the toxicity of the aqueous vapor expired by healthy and by sick persons. Expired air was received and the aqueous vapor condensed in suitable apparatus, the fluid obtained was then injected into rabbits with the following results: (1) Aqueous vapor from persons suffering from diseases of the respiratory tract with fever, injected into rabbits produces a fever which lasts three to six days, general torpor and diminution of reflexes. (2) These effects are less accentuated in the case of patients who have no fever. (3) The aqueous vapor of febrile patients having no respiratory trouble causes no fever or only very slight fever in rabbits. (4) The vapor of healthy individuals has no appreciable effect. (5) Identical results are obtained when the liquid is sterilized.

ABSTRACTS.

THE TREATMENT OF PUERPERAL ECLAMPSIA OCCURRING DURING THE FIRST STAGE OF LABOR.

The scientific treatment of any disease is based as far as possible on some more or less reasonable hypothesis concerning its pathology. In order to appreciate the merits of the various methods of treatment advocated in cases of puerperal eclampsia, it is necessary to briefly consider how much and how little is really known about the pathology of this disease.

The name "puerperal eclampsia" is in itself misleading, because it refers to one symptom only of the disease—a symptom which, it is true, is the most striking and the most serious, but, for all that, a symptom which is only one among many. Headache, vomiting, epigastic pain, albuminuria, and sometimes sleeplessness, are all symptoms of this disease, so that the term "puerperal toxæmia" would express far more correctly the true nature of the condition. What is the nature of this poison, or whether in all cases it is the same, is not known. It was for a long time supposed that the toxæmia was due to a primary morbid change in the kidneys, which prevented them from fulfilling their excretory functions in an adequate manner, so that certain substances normally got rid of by them accumulated in the blood. At the present day grave doubts are thrown on this theory, and it is believed by many that the liver has a good deal to do with some at least of these cases of puerperal eclampsia. It is well known that the healthy liver has the power of modifying many poisonous substances brought to it from the intestine by the portal vein, and a failure on its part to perform this duty would thereby lead to the entrance into the blood of certain substances possessing highly toxic qualities.

Hahn, Masser and others have shown by a very ingenious experiment, that if the blood in the portal vein be allowed to enter the circulation directly, without first passing through the liver, serious nervous symptoms are produced resembling those of eclampsia, and these symptoms are especially marked after a meat meal. They attribute these symptoms to the presence in the blood of carbamic acid, a substance which, under normal conditions, the liver appears to be capable of converting into urea. It is an interesting fact that after the introduction of carbamic acid into the circulation, in addition to the appearance of nervous symptoms, it was found that the urine became scanty and albuminous. The poison may thus possibly enter the circulation through the hepatic veins, and cause not only the headache, convulsions and other symptoms, but also the renal congestion and albuminuria, which occur in these cases; in fact, the morbid condition of the kidney and the attendant albuminuria may be the result and not the cause of the toxæmia. That poisonous substances circulating in the blood can produce extensive disorganization of the kidneys with albuminuria, has been clearly pointed out by Sir George Johnson in a paper published in the *Medical Magazine* for August, 1894. He relates numerous cases to show that exposure to sewer gas may in some patients induce severe nephritis and albuminuria, and that the condition is rapidly recovered from if the patient is removed from his unhealthy surroundings.

The experiments of Chamberland conclusively prove that some poisonous substance is present in the blood of eclamptic women, although no light is thrown as to the exact nature or origin of this poison. Serum from a healthy human being, if injected into a rabbit, kills it, and the amount required to do this varies with the size of the rabbit. It has been shown that it is necessary to inject ten grammes of healthy human serum for every kilogramme that the rabbit weighs. Thus to kill a rabbit weighing two kilogrammes it would be

necessary to inject twenty grammes of healthy serum, and so on. Chamberland has made many experiments with the blood of women suffering from eclampsia, and has fround that the quantity of serum which will kill a kilogramme of rabbit is always less, and sometimes markedly less, than in the case of healthy serum. In some cases five, four or three grammes per kilogramme of rabbit were sufficient to prove fatal, and Tarnier believes that the toxicity of the serum, as determined by experiment, is an important, though somewhat inconvenient method of estimating the prognosis of the particular case under treatment. This poison may fairly be assumed to act directly upon the cortical cells of the brain, and by overcoming the resistance of these cells, to lead to a sudden liberation of energy which manifests itself as a convulsive attack.

The power of restraining the liberation of energy which nerve cells normally possess may be still further weakened by the reflex irritation produced by painful uterine contractions, and in this way is probably to be explained the frequency with which convulsive attacks show themselves for the first time, at the commencement of labor. Labor pains alone are quite sufficient to produce such a result, unless the stability of the cortical cells has first been deranged by the action of the toxic material, and in cases where convulsions appear during pregnancy before the onset of labor pains the poison must be the sole agent concerned in the attack. It is a well-known fact that the symptoms of toxæmia occurring during pregnancy generally subside if the fœtus dies, and that a similar amelioration is observed after the delivery of the child. This would seem to suggest that after the death or delivery of the child the production of the poisonous agent ceases, though the explanation of the good results following delivery are, no doubt, due in part to the cessation of the active labor pains, and the consequent elimination of one source of reflex irritation. The treatment of eclamptic attacks is founded on the belief that the disease is a toxæmia, but, as already pointed out, the nature and origin of the poison are as yet not fully determined. The scientific treatment of toxæmia occurring during pregnancy consists in preventing, as far as possible, the production of the poison, and in aiding its elimination, and this is accomplished chiefly by restricting the diet to milk and the administration of aperients, diaphoretics and diuretics. When, however, the disease first manifests itself during labor by an attack of convulsions, this plan of treatment is generally inapplicable, so that efforts are chiefly directed towards quieting the nerve centres or expediting delivery. Rapidly recurring convulsive attacks are in themselves a serious source of danger to the patient from pulmonary œdema and increasing cyanosis, and therefore the main object of treatment is to prevent their occurrence or to limit their frequency. Many methods have been suggested which may either be used alone or in combination, and some of these may now be considered in greater detail.

Chloral and Chloroform.—The administration of chloral and chloroform, either separately or in combination, is the method of treatment most widely adopted both in this country and in France, and inasmuch as the mode of action of these drugs is very similar it is well to consider them under the same heading. They act beneficially by quieting the nerve centres, and so rendering them less susceptible to irritation from the poison present in the patient's blood and to the reflex irritation dependent on the uterine contractions. By this means the convulsive attacks can often be checked either partially or completely, and labor may be allowed to take its course. If the patient, as is generally the case, is comatose, chloral may be administered by the rectum. Sixty grains of chloral mixed with two ounces of syrup should be injected into the bowel, and this may be repeated at the end of five or six hours. A third dose should be given six to twelve hours later, and Charpentier believes that it is important to continue the administration of chloral even after the child is delivered. He gives, during the first twenty-four hours after delivery, three to five-grain doses by the mouth, at intervals of three hours.

Chloroform aims at producing the same effect as chloral but in a more rapid manner. If the convulsive attacks

occur frequently and the labor pains are good, it is, undoubtedly, an excellent method of temporizing, and one that is relied on by many obstetricians. By dulling the sensibility of the cortical cells convulsions are prevented and sufficient time is gained to allow of spontaneous dilatation of the soft parts. It should be given in sufficient quantities to produce complete anæsthesia, although if there is no recurrence of the convulsive attacks the patient may be allowed to come round partially from time to time. It is best and most economically administered by means of a Junker's inhaler, but, if this is not at hand, it may be given on a handkerchief or folded towel. Either used alone or in conjunction with some other method of treatment, chloroform is, undoubtedly, a most valuable therapeutic agent in cases of puerperal convulsions arising during labor.

Morphia.—The employment of subcutaneous injections of morphia in large doses has been strongly advocated by Veit, and his success has led others to adopt this plan of treatment. It is generally believed that morphia is dangerous in cases where the urine is scanty or suppressed, but theoretical objections cannot stand against the practical experience of Veit, who in a series of more than sixty cases of puerperal convulsions had a mortality of only 3.3 per cent. He gave the drug in doses which may almost be described as heroic. The plan he advocates is to inject subcutaneously half a grain of morphia after each fit, but limiting the amount to three grains during the twenty-four hours. In spite of the good results obtained, this plan of treatment does not seem ever to have become widely popular in this country.

Hot Baths, etc.—The treatment by hot baths is one which, as a rule, is not applicable to cases of convulsions occurring during the first stage of labor because of the practical difficulties which are met with. The principle appears to be sound, and the results claimed for this method are satisfactory, but unless a bed-side bath is obtainable or the bath-room is very easily accessible the plan is not a safe one to adopt; moreover, it cannot well be employed when the patient is deeply comatose. The object in view is to obtain free diaphoresis, and so to aid in the elimination of the toxic materials circulating in the blood. If baths are employed, they should be used in the following way: The patient is placed in a bath-tub filled with water at a temperature of 100° F. The tub is covered with a heavy blanket, leaving the patient's face free, and the temperature of the water is gradually raised to 110° F. The patient remains in the bath for half an hour, and if distressing cephalic symptoms are complained of, a towel wrung out in ice-water may be placed on the head. While in the bath, the patient is made to drink large quantities of water, and upon emerging she is wrapped in a warm sheet and then enveloped in blankets, so as to leave only the face free. Within a few minutes free perspiration is observed, and this may this may be allowed to continue for two or three hours. If necessary, the hot bath may be repeated. As a substitute for this plan, the patient may be simply wrapped in a blanket wrung out of hot water, and surrounded with a large number of dry blankets, or, if preferred, the steam from a steam-kettle may be introduced beneath the bed-clothes, which have been raised up by means of a cradle.

Pilocarpin is a drug which, if used at all, requires to be employed with much caution. The free diaphoresis produced by it certainly sometimes gives marked relief, but its liability to induce dangerous collapse should always be kept in mind. The drug has been given subcutaneously in doses of one-fourth to one-third of a grain, the depressing effects being combated by the administration of brandy by the mouth or rectum. Deep coma, a weak heart, or commencing œdema of the lungs are to be regarded as absolute contra-indications to its use.

Venesection.—The value of blood-letting in cases of puerperal convulsions is a point on which there is much difference of opinion, and one on which it is not easy to come to a just conclusion because it is seldom or never employed alone. Blood-letting as a routine treatment has certainly fallen into disfavor, but by many it is still employed in cases where the patient is strong and there are no signs of anæmia. Under these circumstances the operation is done

with the object of lowering blood tension, and so diminishing the irritability of the cortical cells, and in many cases, whatever be the theoretical explanation, the fits are undoubtedly lessened in severity. In cases where, owing to the frequency of the fits, the patient is deeply cyanosed, with great engorgement of the venous system and the right side of the heart, venesection may be employed with the object of relieving the over-distended right ventricle and so improving the pulmonary circulation.

Dührssen's Method.—This treatment is founded on the principle that the most certain method of checking the frequency and severity of the convulsive attacks is by emptying the uterus. During the period of gradual spontaneous dilatation of the os externum many fits may occur, and the patient may thereby be exposed to much danger. Dührssen showed that after the cervical canal had opened up, the obstacle to delivery which is offered by the undilated os externum can readily be overcome by making several deep incisions—usually four in number—reaching from the margin of the os up to the utero-vaginal junction. He asserts that when these incisions are properly made no further obstacle remains, and the child can readily be delivered without any fear of tearing the soft tissues. In Dürssen's hands this plan of treatment has proved highly successful, and he has published a series of thirty-five cases of puerperal eclampsia treated by this method with no maternal death and with the loss of only two of the children. The technique of the operation merits careful attention. The most important point to keep steadily in mind is that the incisions should never be made until the supravaginal cervix is fully dilated—that is to say, until the cervical canal is fully opened up. It is t overcome the resistance offered by he undilated os externum that the cisions are employed. The incisions should reach right up to the utero-vaginal junction, as otherwise during extraction a tear may occur and extend beyond this point into the vascular tissue of the supravaginal cervix. The incisions are made with long, straight, or angular blunt-pointed scissors, and should divide the cervix into four quadrants. One or two fingers of the left hand are introduced through the os externum for the purpose of guiding the scissors whilst the incisions are being made. If the incisions are strictly limited to the vaginal portion of the cervix no harm will be done either to the bladder in front or to the peritoneal cavity behind. The incisions are not attended with much hæmorrhage, and after delivery of the child, Dührssen never found any need for sutures. If proper precautions are taken there need be no risk of septic infection. After the cervix has been duly incised and complete dilatation thus brought about, delivery is effected either by means of forceps or version. If the perineum is rigid, this may be divided with a knife and subsequently sutured. When the cervical canal is not dilated, dilatation may be effected by hydrostatic bags, and the subsequent canalization of the external os rapidly effected by incision. As, however, eclampsia so often occurrs in primiparæ the preliminary dilatation of the cervical canal is seldom necessary, because in such cases the canalization of the cervical canal frequently occurs before labor actively commences. This operation is only to be undertaken when the mother or child are manifestly in danger.

No attempt has been made to describe all the plans advocated for the treatment of puerperal toxæmia, but the very number of these plans is in itself evidence that none of them is altogether satisfactory. The difference in severity and frequency of the convulsive attacks, and the danger to which the patient is thereby exposed, varies enormously in different cases, and therefore no one form of treatment mentioned above will probably ever be adequate alone to meet all cases. It is conceivable that in time, when the nature of the poison or poisons is more fully understood, some substance may be found which will act as an antidote and so neutralize the deleterious effect which the poison has on the nerve centres. The only attempt which has been made so far in this direction is the intravenous injection o normal saline solution, which acts by diluting the poisons rather than neutralizing it. At present, since the treatment is mainly symptomatic, it is ob-

vious that the therapeutic measures adopted will necessarily vary with the nature and severity of the symptoms present. Chloroform, which is indicated in nearly all cases, may in itself prove sufficient if the labor pains are active and dilatation is going on rapidly; but the inhalation of chloroform, if unduly prolonged, may prove injurious, and Dührssen asserts that it favors the production of blood disorganization, broncho-pneumonia, and fatty degeneration. When labor is slow and the fits infrequent, chloral meets the indications better than chloroform, and when labor is slow and fits infrequent and unchecked by chloroform, delivery must be affected as speedily as possible. There can be no doubt that in cases of this kind the method of incising the cervix recommended by Dührssen will prove of value. In cases where the labor is slow and fits are infrequent it is useful to supplement the action of chloral by the employment of hot baths or wet packing, and there is no doubt that diaphoresis can be produced more effectively and more safely by this method than by the subcutaneous injection of pilocarpin.—*Practitioner.*

CURRENT LITERATURE REVIEWED.

IN CHARGE OF SAMUEL M. WILSON, M. D.

The Surgical Aspect of Tuberculosis.[1]

Less than fifty years ago scrofula was a vague condition, which the surgeon treated by laying on iodine with a paint brush, much as kings, in the previous centuries, had laid their hands on the afflicted ones. By degrees the subject became more clearly understood, until Koch demonstrated the bacillus, and tuberculosis took the place of older term. Tuberculosis may now be defined to mean an infective disease in which the tissue changes are due to the action of a specific microorganism, the tubercle bacillus. These changes are those of a low and usually chronic type, the inflammatory process feeble and insidious, and there is little tendency to produce a defensive barrier which will isolate the infected region. The use of the term neoplasm, in regard to tuberculosis, is fallacious. Caseation, a process of necrosis and fatty degeneration, is so common as to be almost characteristic. Caseous matter is not deposited, in the usual pathological sense, simply a mass of dead material comparable to the sequestrum of necrosis of bone (not inspissated pus), and is incapable of so active a process as pus formation. Suppuration, to rid the body of the noxious mass, is often excited in the tissues around it, though it does not involve suppuration of necessity, as it may become inspissated, calcareous or encysted. It is as desirable to remove a caseous mass as a piece of necrosed bone, although in regard to the tubercular lesion, the proposition is modified by many circumstances.

To set in action the tuberculous process, there must be present the seed (turbercle bacillus), and a suitable soil. It is evident the soil is of the more importance, as in the haunts of men this bacillus is liberally distributed, and the non-tuberculous individual is one in whose tissues this cannot obtain a hold.

The first elements in treatment are plenty of air, plenty of sunshine, and plenty of good food. Patients do not do well in densely wooded districts, in valleys, by the banks of large rivers and in moist places. They do better by the sea, in districts with low rainfall, with a porous soil, sparse vegetation, and an unimpeded rush of air from the sea. In England there is some difficulty in spending much time in the open air in winter, although I have had patients with high temperatures and suppurating wounds, with acute joint mischief and psoas abscesses out of doors every day in the winter, in spite of snow, frost and rain.

From not treating tubercular inflammations at all, the extreme of treating them too much was reached, but the mean has probably now been reached.

In treating tubercular joints, it is no longer customary to force the limb into a stereotyped strained position, but to place it gently at complete rest, and keep it there. By this treatment the joints generally get well.

In the treatment of gland disease it is essential, in the first place, that the periphery be examined and any exciting cause dealt with, and secondly, the part must be kept at rest. This detail must be observed as much when the neck is under treatment as the axilla or groin. Frequently, of course, it is necessary to remove the glands, but by no means in every case. In tuberculous testes, the modern treatment is, to open and curette the epididymis as soon as softening is found, and to pack with iodoform gauze. Repetition may be necessary, but the result is usually a success.

The present treatment of psoas abscess is a great advance over old methods. The operative treatment differs a little with different surgeons.

I prefer to reach the abscess through the loin by the route I mentioned to advocate in a paper read before the Royal Medical and Chirurgical Society, in 1884. By this incision the abscess is opened near the seat of disease; now and then

[1] Frederick Preves, F. R. C. S. *Medical Chronicle*, October, 1895.

a carious surface can be scraped or a sequestrum removed. When the abscess has been evacuated, suitable sharp spoons are introduced, and the wall of the cavity is carefully and thoroughly scraped until the whole surface has been laid bare, septa broken down and diverticula opened up. When the cavity has been thoroughly flushed with warm sterilized water, and dried with sponges on holders, a little iodoform emulsion is introduced and the wound closed. The well-to-do patient passes his time on a spinal carriage in the open air, be it Winter or Summer. The cavity does not behave as the wall of an ordinary septic abscess, and healing is usually immediate and complete. This peculiarity of tuberculosis is well illustrated by the response of tuberculous peritonitis to operative treatment.

In a series of 308 cases treated by laparotomy, there were 74 deaths; the mortality due directly to the operation being only 2.5 per cent.

Those cases did best in which the operation consisted of little more than a free incision, and in which there was neither flushing of the abdominal cavity nor drainage.

Necrosis of the Labyrinth.[2]

The following is the history of a case where there was an exfoliation of a part of the cochlea which was removed as a sequestrum from the external auditory canal of a patient suffering from otorrhœa:—G. E., a young man twenty-nine years of age presented himself complaining of unilateral deafness, severe pain and purulent discharge in the left ear, pain and swelling over the mastoid process, headache and slight giddiness—the urgent symptoms being of a fornight's duration. He said he had an attack of measles when four years old and since then there had been deafness and a discharge of "matter" from the left ear. Two years ago he had an "acute inflammation" in this ear There were sickness and vomiting, giddiness, with a temporary loss of consciousness, and on three different occasions while going along the street he became giddy, "everything seemed to be going around him" and he fell forwards always on his face and lost consciousness. At this time he staggered very much when he walked and it became so noticeable that his shopmates made remarks about it. Examination showed a swelling, painful to touch, over the left mastoid process. The external auditory canal on the left side was much swollen, very tender, and at the tympanic end was blocked up with granulation tissue and the left ear absolutely deaf. There was no facial paralysis, tinnitus, nor incoordination of motion.

The external auditory canal was syringed out with warm boracic solution and the granulation tissue removed with a snare. Afterward the part of the cochlea shown was brought away by syringing and the urgent symptoms subsided. The specimen consists of one turn and a half of the cochlea and a part of the central coil. About three months after the sequestrum was removed the hearing power was again tested in various ways. The right ear which is normal was plugged with damp cotton wool and a pad placed over it, but still he heard spoken words and Salton's whistle held opposite the ear from which part of the cochlea had been removed.

There was rather a significant result on testing him with the ear trumpet. When the ear piece was inserted in the canal and words in conversational tone spoken into the receiver the sound was heard but the words could not be distinguished. On removing the earpiece and speaking in the same tone he had no difficulty in understanding what was said to him. When last seen there was no swelling nor pain—not even tenderness over the mastoid.

The Palliative Treatment of Jaundice from Malignant Obstruction.[3]

Mrs. L. was admitted to Queensbury House Hospital in December, 1893, with an intracapsular fracture of the femur. As she was eighty-five years old no splints were applied nor extension made to bring about union. She was lifted from bed into an easy chair almost daily. The woman was plump, rather short, with clear faculties and good general appearance, and arteries very little thickened. In April slight dyspeptic symptoms followed by slight jaundice were noticed. Physical examination showing nothing else duodenal catarrh was doubtfully given as the diagnosis, experience showing that jaundice appearing after middle age usually comes from a more serious lesion. After a time the pulsation of the abdominal aorta became more distinct and an elongated tumor supposed to be the pancreas could be made out overlying it. No great enlargement of the liver could be found, but the tumor continued to enlarge and became harder. The distended gall, bladder, elastic and pyriform, was felt in the axillary line below the tenth rib.

A general sense of malaise developing, an operation was proposed but rejected by the patient. Emaciation and discomfort increasing, the patient desired operation which was reluctantly performed. Cancer of the head of the pancreas without involvement of other organs was found. The patient died in about thirty hours, death probably being neither hastened nor retarded by the operation. This case is not reported to place on record an unsuccessful operation on an obstructed gall bladder but to raise the question whether in the presence of malignant disease the operation is justifiable.

With involvement above the cystic duct the operation could not be a success, but if below that point it is palliative if undertaken early in the disease.

Two Cases of Raynaud's Disease.[4]

Mr. J., aged twenty-three; occupation, printer; residence, Nashville, Tenn. The fingers of his left hand were of a deathly pallor, the rest of the hand a dark blue, almost black. The thumb unaffected. The general health was good. Three years ago the fingers began to get cold and white, and resume the natural state in a few hours or a few days. These attacks were frequent during the winter, disappearing at the approach of warm weather. Toward the end of the winter of 1893

[2] James Galbraith Connal M. B., C. M. *Glasgow Med. Jour.* Sept. 1895.

[3] William Russell, M. D., F. R. C. P. *Edinburgh Med. Jour.* July, 1895.

[4] Cranston Nash, M. D., *Jour. of Cutaneous and Genito Urinary Diseases.* July, 1895.

and 1894 he noticed the hand light purple in color and during attacks the hand became almost black while the fingers remained white.

Ophthalmoscopic examination showed the spasmodic contraction of the arteries of the fundus characteristic of Raynaud's disease. I applied to his spine a descending galvanic current of twenty-four cells, with the positive pole in the cervical and the negative in the lumbar region. Three daily applications for six days seemed to cause a cure.

Mr. S., traveling salesman, aged thirty-five; came to me in last July. Both feet to the tips of the toes, and the left hand from the radius to the tips of the fingers, were a dark purple color. The man was vigorous, active, and apparently in good health. He had suffered from cold hands and feet for years, but during the past winter the feet began to look livid and then the hands also. The attacks increased in duration until one lasted from February to July when the man applied for treatment.

The urine was normal and no symptoms of aneurism or valvular heart disease were found and syphilis was denied. The ophthalmoscope showed the spasmodically contracted arteries of Raynaud's disease and also in the region of each macula lutea retinæ, a large, irregular, dark gray deposit.

Regarding this to be a symptom of syphilis and the case therefore syphilitic endarteritis with vasomotor spasm, I gave him one-fiftieth of a grain of nitro-glycerine three times daily and placed him on antisyphilitic treatment. In two weeks the color and temperature were normal. The patient since acknowledged a suspicious sore on the glans penis four years previously and three months' internal medication for the same.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

Aconite to Abort Colds.

The *Medical Record* strongly advocates the plan of giving aconite in the abortive treatment of colds. Small and frequently repeated doses are given, with the result that the fever is controlled, the pain in the muscles disappears, and the patient put on the road to recovery. Aconite is a powerful aid in the treatment of acute bronchitis and colds in the head and chest.

Antivenin: Antidotal Snake-Poison Serum.

Fraser, of Edinburg, in a paper read before the Royal Society (*Medical Press and Circular*), announced that he had succeeded in producing immunity against snake venom, and also that antidotal properties inhere in the blood-serum of immunized animals.

Experimenting on rabbits, among other animals, he first satisfied himself as to the amount of the poison which constituted the minimum lethal dose. He then proceeded to inject quantities below this amount, and found that he could gradually increase them to *fifty* times the dose originally fatal. Not only that, but a buck rabbit, which he exhibited, and which was then in about the one hundred and fiftieth day of treatment, had gained enormously in weight, from 2,000 grams to 3,000 grams, and had increased greatly in strength, and especially in virile power.

Again he found that the mixture of 1-240 cc. of serum obtained from a rabbit immunized to thirty times the minimum lethal dose with cobra venom averted a fatal result on injection, while the injection of a similar serum half an hour after the injection of a venom which otherwise proved fatal in one hour, promptly stopped the symptoms which had already commenced, and saved the life of the animal. He calls this protective serum "antivenin." He mentioned as an interesting fact that the rabbit above referred to had received during the months of treatment enough cobra poison to kill two horses, or about two hundred and eighty rabbits if unprotected.

Not only are Fraser's results of great value for the treatment of snake bite in India and other tropical countries, but they possess a deeper significance in accentuating the discoveries yet to be made in the same direction. It appears that immunizing an animal with the venom of one kind of serpent, protects it from the poison of other species.

Iodoform Gauze.

Dr. Pryor has published the following method for preparing iodoform gauze, which is the only dressing he has found that is powerfully antiseptic, non-irritant, and remains sterile when soaked with discharges: Fine-mesh gauze is steam-sterilized. It is then dried. After drying, the gauze is soaked in a 20-per-cent. solution of iodoform in ether for ten minutes. It is then taken out and the excess of ether wrung out with the hands. The gauze is now placed in a basin and covered with a towel. It is left for twelve hours in a warm room, after which time it will be found that the ether has entirely evaporated. The gauze is now of a greenish-blue color, presenting the characteristic starch-iodine reaction. It is unfit for use in this state, the iodine being too free. The next step is to soak the gauze for twelve hours in a watery solution of bichloride of mercury, 1 to 4,000. This acts as a "fixing agent," and the beautiful golden color of the iodoform again appears. The gauze is now wrung as dry as the hands can make it and preserved in glass jars. Prepared in this way, the iodoform is not held in the gauze in mere mechanical association, but is in every bast cell of the fibre (cotton) of which

the gauze is composed. The advantage of this is manifest: such a dressing cannot be poisonous, as the iodoform is not absorbed. The addition of discharges and blood to the gauze again turns it greenish-blue, showing that the iodine is again in a free state. So, when the dressings are saturated they are yet sterile. In cavity walls, there being no glycerin in the gauze, no serious exudation is induced. This material has been used by the author for five years or more, and has largely influenced, in his opinion, the results as well as after-treatment of his operations. He estimates that he makes one dressing where three are made when other gauzes are used. Altogether he claims to have had marvelous results from this dressing. So far as the chemistry of the procedure is concerned it is as follows: When the gauze is green after the ether has evaporated, there is iodide of starch and there is free iodine; when the bichloride has been added, there is bichloride in the starch and there is iodoform; when the bichloride is changed to calomel by blood, etc., the iodine again becomes free and the dressing is again greenish-blue; this, at least, is the author's idea. —*Western Druggist.*

Water Purification With the Aid of Sodium Fluoride.

In a paper presented at the recent meeting of the Wisconsin Pharmaceutical Association, A. Wangemann, of Chicago, claimed that sodium fluoride added to drinking water was much superior to alum for removing impurities, calcium and magnesium salts, organic matter, noxious bacteria. He especially recommends this treatment for water tainted with sewage. Water thus treated with the fluoride as a rule is absolutely pure, barring the presence of traces of alkali carbonates, sulphates and chlorides. Absolutely *pure distilled water*, the author says, is obtained if to the water contained in the still sodium fluoride is added in the proportion of four ounces to 1,000 gallons (an excessive amount), the first third of the distillate being rejected. The germicidal action of the fluoride is supposed to make it preferable to alum.—*Western Druggist.*

PATHOLOGY.

Crossed Cerebro-Cerebellar Atrophy.

Mingazzini (*Neurol Centralbl*), discusses the cause of atrophy of the opposite half of the cerebellum with unilateral cerebral lesions. It is to be sought in the accompanying affection of the tract whose course is the thalamus and red nucleus of the same side and the peduncle of the opposite side. Cases are adduced in support of this, and it is stated that no single case of crossed cerebro-cerebellar atrophy has been found on record where the thalamus on the side of the cerebral leision was intact. Further, two cases of Jacksonian epilepsy are quoted; in one there was atrophy of the ascending parietal convolution unilaterally with very slight atrophy of the posterior part of the thalamus of the same side, and of the pyramidal tracts on the opposite side; no cerebellar atrophy; in the other, although there was no difference in weight of the cerebral hemispheres, the thalamus of one side was markedly atrophied, here the cerebellum of the opposite side was also markedly atrophied; hence it is concluded that atrophy of a certain part of the thalamus causes crossed atrophy of cerebellum, but lesions of one side of the brain, without lesion of thalamus, do not cause crossed atrophy. There is a tract divisable into three parts: (1) from cortex to thalamus, (2) from thalamus to red nucleus, (3) from red nucleus *via* decussation to opposite half of cerebellum. Cases where unilateral lesion of cerebrum is not followed by crossed atrophy of cerebellum would thus be easily explained either by the probability of some of the three portions of the tract escaping, or by the necessary part of the thalamus not being involved.

NEWS AND MISCELLANY.

A malpractice suit recently decided in Milwaukee, Wis., is of interest in several particulars. The trouble grew out of the accidental leaving of a rubber drainage-tube in the pleural cavity. A physician, the defendant in the case, was treating a young man, aged sixteen or seventeen years, for empyema. An operation had been performed —a resection of one rib—and drainage provided for by means of two properly placed tubes; these were secured in position by two silk stitches, each stitch passing through a tube and the skin. The wound discharged freely for several days. Upon one occasion, in dressing the wound, the doctor, having gathered up the soiled gauze and thrown it in the stove, noticed that one of the tubes was missing. The dressing had been removed in such a way as to lead him to think that the tube might possibly have been thrown into the stove along with the soiled dressings. Examination with probes and forceps failed to locate the tube in the empyemic cavity. The gauze was burning or burned, and it was difficult to decide positively where the missing tube was Another complicating cirumstance was the fact that, on the day previous to this, the dressing had been changed by the mother of the patient and in the absence of the doctor. Under these circumstances it was not deemed best to enlarge the wound or make other incisions to look for a tube that might have been thrown into the fire or otherwise lost outside the boy's chest. The wound healed in about the usual time, and convalescence seemed fairly established. Some months later, however, there was a slight purulent discharge through a fistulous opening in the wound, and the boy was told that a second operation would probably be necessary.

The patient then consulted a second physician, by whom he was sent to a hospital and operated upon. Resection of three or four ribs was deemed necessary, and in the discharge thus liberated was found the missing drainage-tube. The patient recovered, and suit was then brought against the first physician for $20,000, claiming damages for long illness and permanent deformity.

The case was tried three times. In the first trial the jury did not agree; in the second the plaintiff was given a verdict for $2,000; in the third, the judge threw the case out, on the ground that the plaintiff had not shown in the trial that his illness and disability were due to lack of reasonable skill and care on the part of the first physician.

This final outcome of the case, although not precluding the possibility of further litigation, meets with the very general approval of the local profession.—*Med. News.*

The Bicycle is being put to practical use in Philadelphia. In addition to policemen being mounted on wheels, the messenger boys in the outlying districts have been provided with bicycles and the service rendered is very efficient, as calls can be answered in less than one-half the time it has previously taken.

The use of the bicycle has expanded and developed from a salutary athletic exercise into **a great social obsession**. It has seized upon every class of society, both sexes, all ages, and every condition of life. It is taken up by the well because it makes them feel better, by the invalids because it makes them feel well, by tired people because it rests them, and by the rested because it makes them feel tired. The fat ride to get thin and the thin to get fat. It has displaced the horse. It has made the simple and ancient custom of walking most unpopular; it has cut down the function of the steam car and competes successfully with the suburban trolley. The doctors have taken it up and expressed their approval of it, and we are far from saying a word in opposition. The bicycle has come to stay, though not with quite the omnipresent activity which it now enjoys. Already we notice grave and reverend seigniors in our profession riding along the cobble stones in their golf suits instead of lying comfortably back in their victorias. Time that used to be spent in serious scientific pursuits at the hospital, in the laboratory, and at the desk is now shortened in order to enjoy a ride up the boulevard. The bicycle has cut down the scientific activity of the New York profession at least fifty per cent. already.—*Post Graduate.*

Physician's Witness Fees.—Judge Toney, in the Law and Equity Court, decided a disputed point which is of interest to all physicians In a damage suit, Dr. B. F. Atchison was summoned as a witness for the plaintiff. He was not present when the case was called and the plaintiff refused to go into the trial without him, requesting an attachment returnable forthwith. The court refused to issue the attachment, and the plaintiff then had the case dismissed without prejudice. Judge Toney said the plaintiff had not agreed to pay the physician's fees and expenses, and therefore could not force him to appear in court, although he had been subpœnased. He said the law on this subject is an old one, although it had never been enforced. To compel the attendance of a physician it is first necessary for the party desiring his evidence to pay his fees and costs, and Judge Toney said that he would compel no physician to attend his court under any other circumstances.—*Journal.*

Probably the most interesting sections of the annual report just issued by the Mass. Board of Registration in Pharmacy are those dealing with the **sales of alcoholic liquors by druggists.** After outlining the state of things in 1875, when a fourth-class license law for druggists, costing $50, was passed, the Board goes on to 1878, when the sixth-class special druggist license, costing $1, was provided. This required the registration of name of purchaser of liquors, residence, date, amount of purchase, price, use and the signature of purchaser. "Drug stores," says the report, "were increasing in number far beyond the needs or demands of the people. Ignorant, inexperienced men, mere pretenders, without the slightest knowledge of pharmacy or regard for honesty, opened stores so hazardous to the welfare of the people that the Legislature in 1885 established this Board to check, if possible, this increase of fraud, deception and crime, and protect the people from the reckless and ignorant dispensing of drugs, medicines and poisons. The statute of 1885 provided for the issuance of certificates to those already in business on their own account or who had had three years' actual experience. This was supplemented in 1887 by a further rule that certificates should be issued only to those passing a satisfactory examination in pharmacy." The Board goes on to say: "This legislation was the beginning of good work, but as the cause of temperance or control of liquor sales advanced, the efforts to hide illegal sales of liquor behind the sign of the mortar and pestle continued to increase, and in some cases were most pronounced. To meet this condition the stringent laws of 1893, giving this Board power to suspend or revoke certificates of registration in pharmacy, were passed. Under this act the Board has suspended seventeen certificates and revoked eight. It is with much regret that we are forced to record the fact that some authorities have ruled that there was no limit under the sixth-class license to the number of sales, or the quantity, under five gallons at any one time. This elastic interpretation of the privileges of the $1 license is beyond our comprehension, and is surely strong evidence that the privileges should at once be clearly defined." The number of examinations during the past year has been 494. Of these 103 were passed and the rest rejected. Of the total number examined, during the ten years of the Board's existence—3,538—1,059 have been passed. Among the suggestions made for further legislation are: A change extending the time in which complaint for violation of the pharmacy laws can be made from fifteen to sixty or ninety days; to require registration every two years, to provide against persons using dead men's certificates; a clear exposition of the rights and privileges conveyed by a sixth-class liquor license; to give the Board power to examine the records of liquor sales in drug stores, and on discovery of violation of law to have the power of revoking the certificate: to enact that all suspended and revoked certificates must, on demand, be given into the custody of the board. The report proper concludes with an appeal for a sufficient appropriation to carry out the augmented duties ensuing from the acts of 1893 and 1894, and for the employment of one or more special agents —*West. Drug.*

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ORIGINAL ARTICLES.

THE SYMPTOMS AND TREATMENT OF VARIOUS TYPES OF APPENDICITIS.*

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A correct interpretation of symptoms of any disease opens the way to its rational treatment, or points to limitations; though in carrying out such treatment on radical lines the remedy may impose greater dangers than those which succeed in consequence of the disease itself. This is about the situation in some types of appendicitis.

In pathologic lesions involving the appendix, or neighboring organs lying contiguous with it, an accurate diagnosis is often attended with great difficulty; but, assuming that the clinical picture of inflammatory or degenerative changes is quite unequivocal, of what avail is that unless we are able to determine the type, intensity and progress of the lesion?

Everyone who has had much experience with the disease under consideration, knows that there is none, perhaps, so often obscured by vague undefined and misleading symptoms. Its progress is not fixed by regular stages; for in some we will observe a slow, tedious advance, with an abrupt, brief convalescence. In others, again, all three stages are apparently crowded into one, when in from 24 to 48 hours after its outset it has run its course to death or recovery. Evidently, then, with a malady presenting such an unstable clinical course, a reliable definite symptomatology is not to be expected. Some few authorities would have us believe, however, that the category of symptoms is constant, and that we may follow the course of the malady with a large degree of precision and accuracy. This, certainly, is an erroneous view, not generally shared by the profession or those whose experience is the largest.

Notwithstanding this rather chaotic state of the symptomatology of appendicitis, there are pathological changes occurring in the course of the average case and giving rise to phenomena, a correct interpretation of which will go far in pointing the way to a rational therapy.

To these I direct attention, dividing the signs and symptoms into first, those of a constitutional character; and second, those which are localized.

*Read before the Harlem Medical Association, New York, Nov. 6, 1895.

Constitutional Symptoms.

The disease known as appendicitis, when dependent on pathologic changes, arises in consequence of two correlated factors. The first operates through the blood as malnutrition, deranged tissue metabolism and local enervation; all concentrating their action through some unknown influence over a localized area. It is immaterial whether, in this instance, this succeeds through the action of the tubercular or other dyscrasia, the impaction of fæces or otherwise, the effect to reduce or destroy the vitality of the involved tissues is the same in all.

This is the preliminary stage, which not uncommonly is exceedingly insidious in its advent. At this period, when the vital forces of resistance in the affected parts are at a low ebb, a new element of destruction takes the field and we have an invasion of pathogenic bacteria. The bacterium-coli, a germ always found in the healthy lower intestine, is stirred into new activity, and, in some cases with alarming rapidity, lays waste on everything it seizes. This is not invariable, for I have, in two cases, found only the tubercular bacillus and staphylococcus.*

Probably, not until the infective process commences do we have decided constitutional disturbances.

Eckhorn has shown that of the numerous varieties of bacteria in this disease, the bacillus coli holds a foremost position; while Barbacci, of Florence, alleges that more slowly growing forms of microbes, and less conspicuous, may also cause perforation of the appendix.

Pain.

This is the most constant of all symptoms. Inflammation has commenced. Where? In the mucous-coat, or over the serous investment? Pain is generally diffused, through an extension of the infective elements by way of the mes-appendical lymphatics, over the omental apron and the parietal peritoneum. Peritoneal pain is well known to quickly exhaust strength and to violently disturb the system. The heart is weakened and the pulse quickened. There may or may not be a considerable elevation of temperature. This is not usually pronounced unless the case is one of an acute type and in the advanced stages. Disturbances in the alimentary canal set in early, the appetite is lost, and retching or vomiting commences. Diarrhœa is common in the early stages in many cases, though constipation from paresis of the intestine is most common as the disease progresses, and is always present in serious cases. Incessant vomiting and unquenchable thirst invariably stamp a case of grave character.

Local Symptoms.

Local symptoms will of course depend on the nature and extent of local changes. Mild catarrhal appendicitis has indefinate symptoms, and is one phase from which, probably, no one who has a pervious appendix escapes infliction at some period of his life.

In the severe form constitutional symptoms are more pronounced. By an extension outward through the lymphatics, comes the second type, designated peri-appendicitis or localized appendicitis, in which the pathologic changes have not extended beyond the cæcal area. The third variety, is that in which we have localized ulceration of the appendage with perforation. Here, we may have first, a walling off of the appendix from the general peritoneal cavity by adhesive inflammation, or, second, a sudden perforation, without this provisional feature.

In nearly all types we will find, on palpation, that all the areas of the abdomen are abnormally sensitive, with marked soreness on deep pressure over the right iliac region. When inflammatory changes are localized, a mass will be detected, of varying density, volume, situation and outline, in the right iliac fossa. In this type we are confronted by two formidable difficulties in attaining that precision in diagnosis so essential for the adoption of judicious treatment; for, very often the preservation or loss of our patient's life will depend on our line of action at this juncture.

The first important question will be, —Is this exudation thrown out about the diseased appendix, serious or fibroplastic; or, is it purulent?

Second,—Is it attended with perfora-

*Since the above was written, Oct. 25th, I have operated on a case in which the bacillus-coli-communis was absent though tubercular bacilli were found in abundance.

tion? For it should be remembered that we will find perforation in a considerable number of these encysted cases.

If we were in a position to accurately estimate exactly what phase of the pathologic process lay before us, then the problem is solved. But we cannot.

We may group together and carefully weigh all phenomena, and try to strike a balance one way or the other. Nevertheless, the elements of doubt and conjecture still remain.

In the fulminant type attendant with early perforation into the peritoneal cavity, the abdomen is enormously distended and the diaphragm is crowded far up into the thorax, thereby seriously embarrassing respiration. The entire intestinal tube is paralyzed. The inflamed bladder wall is powerless to expel its contents. Our patient has general septic peritonitis, with all that dreadful condition implies.

The common, ordinary types of appendicular inflammation, usually may be recognized without difficulty; though it is well to remember that there are various lesions or derangements of function, which possess many features in common with them. The most frequent is typhlitis, or peri-typhlitis, from impaction of fæces at the head of the colon. Also the radiating pain of a renal colic, involving the right ureter. I have seen a case of obstruction of the cystic-duct of the liver with great distension of the gall-bladder, mistaken by two practitioners for appendicitis.

Pericæcal suppuration is quite impossible to differentiate from the cæcal lesion; and, it is quite unnecessary to add, that in child-bearing women with a tendency to movable kidney or inflammatory affections in the upper pelvic organs, accurate diagnosis may be anything but simple. What tends, besides, to render this difficult, is the deviating, irregular site of the appendix, and the tendency of the cæcum to swing far away from its moorings by an elongation or a relaxation of its posterior connective tissue ligament, Through this typical adjustment, the anatomical relations are greatly altered; and the cæcum may make excursions upward under the liver; inward beyond the median-line, and downwards into the pelvis. On three occasions I have found the cæcum passing out through the right inguinal canal, in hernia. In one case, in a boy, the appendix alone came down through the inguinal canal.

From the foregoing, which includes only the more general features of the various pathologic lesions, morbid-anatomy and deviations of typical arrangement, it is obvious that as far as typographical-anatomy, or fixed land-marks, are concerned, we have no rules to proceed on for the avoidance of error or definitely establishing diagnosis in a considerable proportion of cases.

Dr. Chas. McBurney, to whom we are indebted for establishing the operation for appendicitis on a scientific basis, believed that a hypersensative area, occupying the centre of a line running from the anterior spine of the ilium to the naval, pointed to inflammation of the appendix. In justice to this deservedly eminent surgeon, it should be understood that he never attached the importance to this — designated by Stimpson the "McBurney point"—that others have only given it as one of the aids in reaching diagnosis in ordinary cases. It certainly is indefinite, for in many morbid conditions in no manner connected with the appendix, deep pressure here will evoke pain. And, *per contra*, in not a few of the worst cases of ectopic-appendicitis this sign may be wholly wanting. Gage, of Boston, concludes that this sign is valueless, because the position of the appendix is so changeable. Dr. George Edebohls, of New York, believed that surface palpation of the appendix was possible, and has reported instances confirming this view.

Not long since, it was my privilege to see one of the most celebrated surgeons in this country perform an operation over the left iliac fossa.

He expressed doubt as to the utility of palpation, though he said that the case about to be operated on, evidently had a very much thickened appendix; and he believed it could be readily outlined through the abdominal wall by the finger over the integument. Removal of the organ, which was exceedingly small and atrophied, proved that he had been deceived. It does not appear, from current surgical literature, that surface palpation has proved a reliable criterion or is generally practicable.

Rectal or vaginal exploration affords much assistance, especially in the female sex. But in order to insure the fullest measure of success with it general anæsthesis may be necessary to secure full relaxation of the abdominal muscles, and spare the patient pain.

Constitutional Symptoms in Relation to Local Changes.

Having outlined those symptoms and signs made manifest from disturbances in the system, and the local changes, it now becomes necessary to demonstrate those phenomena dependent on the latter, as expressed through constitutional disturbances. For a correct interpretation of their significance will often determine our line of action without proceeding to the seat of lesion.

Clinically, we may group appendicular cases into three classes, basing this division on the symptomatology belonging to each.

First, we have what, perhaps, may be called *walking* cases; those which pursue so moderate a course that the person attacked may attend to his ordinary business or occupation if this be light or sedentary. At all events, there is no severe constitutional disturbance.

Second, Those in which pyrexia, pain and general weakness compel one to take to bed. In this class, unless inflammatory changes advance to suppuration or perforation, the constitution is not seriously disturbed and, there is no ground for serious apprehension.

Third. In this class grave symptoms warn us that we are in the presence of a formidable malady, that serious local changes are taking place, and that, probably, general-peritonitis has set in. Agonizing pain, great thirst, vomiting, a quick thready pulse, sunken features, and great despondency marked by failing of all the vital powers, combine to give these cases a most alarming aspect. My own experience in this class has led us to place but little reliance on the temperature. Arterial depression or augmentation is the safer index. In this type we have a grave condition succeeding from two quite independent causes, either one in itself enough to cut off life. First, auto-toxæmia, and, second, shock. Sometimes the latter strikes with such force us to cut off every possible hope of recovery.

Treatment.

The treatment of appendicitis until about twenty years ago was exclusively medical, or tentative. Its pathology was not correctly understood. The mortality was necessarily very large in the diffusely suppurative or perforated cases.

Dr. Henry B. Sands, in 1881, accidentally came upon a perforated appendix while operating for a case of iliac phlegmon. He cut it away and his patient recovered. Then came the mad rush for appendisectomies, and not a few surgeons claimed the domain of the appendix as exclusively their own. In their intemperate zeal to put into effect their theories, they have, without question, often inflicted needless mutilations by the indiscriminate and ill-timed use of the scalpel, and have raised the mortality in a class of cases medical therapy might have spared. General statistics, gathered from numerous and widely-spread sources, show that about 80 per cent. recover by the aid of medical measures alone. In the other 20 per cent., judicious and skillful surgery alone can avail.

As the subject of treatment is a very large one, only a few general observations will be offered on the management of the less serious, reserving allotted time for those which legitimately come under the domain of surgery.

It may tend to direct us in the right course, to learn the views of some of those whose position in the profession gives weight to their utterances.

Osler says: "There is no medicinal treatment of appendicitis; there are remedies which will allay pain, but there are none in any way capable of controlling the disease. Operation is indicated in cases of acute inflammatory trouble in the cæcal region, whether a tumor is present or not, and when by the third day the features of the case point to a progressive lesion. The mortality under these circumstances are very light." (Osler, *Principles of Medicine*, P. 442.)

D'Arcy Power, on the contrary affirms that, "the prognosis in cases of simple inflammation of the appendix is good, for the vast majority recover under medical treatment; though, when per-

forative inflammation occurs and the general peritoneum is involved, death is quite certain without immediate laparotomy." (*Surgical Diseases of Children.* D'Arcy Power, p. 214.)

De Costa has "seen a large number of catarrhal cases cured by medical treatment; but when the disease advances to pus-formation, surgical treatment is in order." And he adds that, "pus may be recognized, rather by increasing local tenderness and persistant colicy pains, than by temperature or pulse."

Jonas believes that the majority of cases of appendicitis are non-suppurative and amenable to medical treatment. McRea, of Atlanta, Ga., admits that there is no question in his mind, but the majority of cases of appendicitis get well without getting into the surgeon's hands.

Medical Therapy.

In all cases in their earlier stages, we will do well to thoroughly clear the lower bowel, the colon, by repeated injections of warm suds and olive-oil, until the part of the canal is quite clear and we are sure that the colon is well unloaded and the cæcum emptied.

The patient should be placed on low, liquid diet, easy of assimilation. Milk though highly nourishing is too rich and difficult of digestion, though milk-serum, or whey, may be freely given. In all cases there is more or less thirst; there is a demand on the part of the system for fluids for a tonic element is circulating through the blood.

Under these circumstances, it strikes me that Dr. McGillicuddy's "internal sterilization of the tissues" may be adopted with decided advantage. It consists in giving the patient copious libations of sterilized water, either very warm or cool, as is best borne; it being assumed, that the blood and secretions are thus dilated, and that the toxines are washed away or are thrown off by the emunctories. I would introduce fluid at both ends of the alimentary canal, and press it in all appropriate cases until mitigation or complete subsidence of symptoms ensued. Water here acts as an eliminator and as a laxative the only one, I believe, safe in appendicitis.

Should we administer morphine in these cases? In my opinion it is cruel and inhuman to withhold it. And the index for its limits should be the relief of pain. Abdominal pain is always most agonizing and depressing. Morphine buoys up the spirits, and in tonic doses, steadies and strengthens the circulatory apparatus. "But," it is said, "it masks symptoms." It certainly will suppress pain.

It is unfortunate for the patient, however, if his medical-attendant ignore all other phenomena except this *one* of neural origin. Local applications are most potent agents as analgesics and deterrents. Hot poultices often give great comfort, and it is probable, by the effect on the peripheral vessels and nerves, favorably influence inflammatory action particularly over the cæcum. Of late years ice has been substituted in large measure for heat as a topical application in appendicitis. It seems to give great relief in some cases, although there are many theoretical objections to its employment. Cold, certainly is a most intense depressant; it contracts the peripheral capillaries and in this way augments internal congestion. It must, likewise, retard or altogether arrest resorption of imflammatory deposits; and if long continued rather augments the tendency to gangrene of the appendix.

The active element supreme here as an etiological factor, is germ infection. Have we any safe medical agent which may arrest or possibly extinguish it, thereby refuting Osler's dictum? It is my conviction that we have. Mercury is admittedly a germicide of great potency. Judiciously administered in this disease, it is prompt and decisive in action. Administered early, to my mind it has proved almost a specific. Many times have cases, referred to me for operation, yielded most happily to this drug. My method of administration is, always, by inunction, From one-half to one ounce of mercurial ointment is well rubbed in over the right iliac fossa when urgent symptoms are present. In many, its affects are almost immediate. The pain diminishes, tumifaction subsides, paresis of the intestine passes, and, generally, in twelve hours or less the bowels run.

An approximate knowledge of the

various complex pathologic-processes, so commonly lodged in the appendix, and the courses which the various phases run, at this point will aid us in determining just what the limit of medical or tentative treatment should be.

The types of inflammation which occur here, in their order of frequency, are, 1st.—*Catarrhal;* 2nd.—*Fibro-Plastic;* 3rd. —*Sero-Sanguinous;* 4th. —*Sero-Plastic;* 5th.—*Gangrenous.*

The first four, in those otherwise of sound constitution, usually end in spontaneous recovery, or in recovery accelerated by the aid of specific medication alone.

In the first, proliferative catarrhal inflammation obliterates, partly or completely, the lumen of the appendix. In the second, fibro-plastic effusion on the surface, welds it to a neighboring organ, and leads to atropic changes through diminution of the blood supply. The third, or sero-sanguinous, though attended with severe symptoms may be arrested when the deposits are resorbed. The fourth, is probably a transition from the third; the septic elements of infection have acted on a ferment. as they do sometimes in serious effusions of the pleura, with resulting suppuration.

Can this material when it is encysted about the appendix, undergo disorganization, or chemical changes and absorption, without peril to life? When in small quantities and not with associated perforation, it undoubtedly can. A pyogenic membrane, wherever situated, possesses the dual property of secreting and absorbing pus. When those pus formations are treated successfully by aspiration some residue of purulent elements must always remain, yet recovery is always prompt after the greater part is thus drawn off. To claim that the prompt and skillful administration of medicine in this disease, is inert or impotent, is to deny its utility in any organ or structure in the body.

For the fifth, the gangrenous perforative type, judicious surgery should be our sole reliance.

[TO BE CONTINUED.]

MEDICAL PRACTICE IN THE SWAMPS.

MALARIAL HÆMATURIA OR CREOLE YELLOW FEVER.

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Of all the diseases, with which the practitioner in the Mississippi Delta has to contend, for fatality none is equal to Malarial Hæmaturia. With a mortality of fully fifty per cent., it is not a matter of surprise that it is held in dread fear by the inhabitants of the region in which it prevails. From the evidence of physicians who have had abundant opportunities for forming an intelligent opinion of the clinical phenomena of the two maladies *genuine* yellow fever bears no relation to it in malignancy. Winding its folds insidiously around its victim, who, at the time, goes about his affairs perfectly unconscious of impending danger, with only a slight chilly paroxysm occurring daily for a short time to warn him of his peril, he considers his sensations not worthy of attention and words cannot express his horror when, at the termination of the fifth or sixth exacerbation, he realizes from the condition of his urine changed from a normal color to a dark coffee hue that he is victim of the frightful monster. In a few hours, another chill follows more severe than the preceding one; the liver becomes tender to the touch, and hepatic dullness extends two fingers breadth or more below the level of the ribs, while the skin and conjuctivæ assume the deep bronze appearance, from which, in connection with the locality, the disease derives its designation of *Creole* yellow fever. At short

intervals chilly sensations occur, though the temperature may be two or more degrees above normal. The urinary secretion diminishes in amount, and becomes so dense and viscid that, in the course of seventy-two to ninety-six hours, entire suppression follows, and the patient expires in a state of coma.

Unfortunately, a diversity of opinion exists in the profession as to the proper mode of treating the disorder, and with no authority to whom he can refer for aid, the physician has a choice of remedies with no assurance he can succeed with any, while the nature of the malady requires prompt and intelligent management. With the hope that the histories of my first four cases will prove of interest to the members of the profession, they are respectfully submitted for consideration.

Case 1. Male, white, aged thirty-five, had experienced chilly sensations with languor for the past few days, but did not consider himself ill, as he was able to continue his work as a blacksmith. After to-day's paroxysm he passed a small quantity of coffee colored urine, and immediately summoned me. On arrival, I found pulse, 108; temperature 101°; respiration, 18; liver enlarged and tender; skin, moist, with a gradually deepening bronze tinge extending over his body. I administered hypodermically:

℞ Quinine Bisulph grains iij
Morph. Sulph " ¼
Atropia " 1/150

and prescribed

℞ Calomel grains, viij
Camphor
Pulv. Capsici aa " x
Morph. Sulph. " ¼
Atropia " 1/60
Quinine " " xx
Div. in pil. no viij
M. S. Two every sixth hour.

In the interval, for nourishment to be allowed four ounces of skimmed milk, every three hours. On my return to my office, I examined a specimen of his urine, with the object of forming an opinion as to rational treatment of my patient, as I was entirely dependent on my own resources. It presented, reaction neutral; sp. g. 1025; traces of albumen; sugar, none: microscopically—blood casts, blood corpuscles, crystals uric acid, etc.

I concluded the remedies I had recommended would fulfil present indications, and on my return the next morning, his pulse was ninety; temperature, 98.5°; urine, clearer, abundant and exhibiting to the usual tests,—reaction alkaline; sp. g. 1020; albumen, *faint* trace; blood casts and blood corpuscles, very few. I directed his nurse to continue the skimmed milk diet, and to give

℞ Calomel grains ij
Morph. Sulph. " j
Atropia " " 1/60
Camphor
Pulv. Capsici aa " xvj
Quinine Sulph. " xx
Div. in pil. no xvj
M. S. Two every sixth hour.

He was dismissed cured in a few days and at present is in splendid health.

Case 2. Male, negro, aged thirty-one, had chills five days prior to visiting me. To-day he passed a small quantity of dark urine at the expiration of the chills, and at once got in a buggy and rode the distance of five miles to my office. On arrival his pulse was 104; temperature, 102.5°; conjuctivæ, *very* yellow; liver enlarged and tender on percussion. He was so badly frightened that he could not urinate, so I passed a catheter, and drew off two ounces of coffee-colored urine, which exhibited—reaction acid; sp. g. 1020; albumen, trace; sugar, none; crystals of uric acid; crystals of urate ammonium; blood corpuscles; blood casts.

I prescribed the following,

℞ Calomel grains, iij
Morph. Sulph. " jss
Ext. Belladonna " iij
Camphor " xl
Pulv. Capsici " xx
Quin. Sulph. 3 j
Div. in pil. no xxiij
M. S. Two every sixth hour.

I ordered a skimmed milk diet.

On my visit to him the next day, he assured me that he had had no paroxysms in the interval. His pulse and temperature were normal; urine, about an amber color, and exhibited—reaction, acid; sp. g. 1012, albumen, *slight* trace; blood corpuscles; blood casts, *very* few. I continued treatment, as noted above forty-eight hours longer, and dismissed him cured.

Case 3. White, male, aged twenty-one, had a similar attack ten years ago,

but since that time has enjoyed good health. After experiencing several daily chills, at 11 A. M. to-day, he urinated during the paroxysm, and passed a small quantity of bloody liquid, which on examination showed—reaction, neutral; sp. g. 1015; albumen, trace; sugar, none; blood casts; blood corpuscles. On my arrival at 6 P. M. he presented the following symptoms—pulse, 96; temperature, 100°; urine, *slightly* clearer than that passed in the morning during the chill; skin, quite yellow; liver enlarged and tender. I gave, at once,

℞	Calomel	grains, v
	Sodi Bicarb	" x

M. S. In one powder.

I repeated the dose at 7 P. M., and at 9.30 P. M., gave five grains of quinine. At 7 A. M., he had a slight chill, skin and conjunctivæ had become *intensely* yellow. At 2 A. M. he passed a small quantity of urine, which was very *dense* and *viscid*, leaving a deposit on the side of the vessel when agitated. He realized his desperate condition, and requested that a priest be called in order that he might receive the last Sacrament, and prepare his soul for another world before sinking into the unconscious state, which, in this disease, for quite a number of hours precedes death. I gave five grains of quinine, which was promptly vomited. 4 A. M., pulse, 96; temperature, 102°. I gave hypodermically

℞	Morph. Sulph.	grains, $\frac{1}{8}$
	Atropia	" $\frac{1}{300}$
	Quin. Bi-Sulph.	
	Phenocoll aa	" 5

At 10 A. M., to relieve nausea, which was very distressing, I gave at one dose:

℞	Bismuth sub-nitrate	grains x
	Carbolic acid	gtts. j
	Fowler's Sol.	" iij
	Aqua Calcis	ʒ j

At 11 A. M., I gave a capsule of

℞	Quinine	
	Phenocoll aa	grains, v
	Camphor	
	Pulv. Capsici aa	" jss
	Morph. Sulph.	" $\frac{1}{16}$
	Atropia "	" $\frac{1}{600}$

which was retained, and as well his nourishment, which consisted of four ounces of skimmed milk every three hours, followed by a teaspoonful of whiskey in a little water.

4 P. M. second day, urine *slightly* clearer, and does not stain the sides of the vessel when agitated. Pulse, 96; temperature, 102.5°. I gave eight grains of calomel dry on his tongue, and prescribed every sixth hour, to allay nausea,

℞	Bismuth sub-nitrate	grains, x
	Carb. Acid	gtts. j
	Fowler's Sol.	" iij
	Aqua Calcis	ʒ j

To be followed by a capsule of,

℞	Quin. Sulph.	
	Phenocoll aa	grains v
	Camphor	
	Pulv. Capsici aa	" jss
	Morph. Sulph.	" $\frac{1}{16}$
	Atropia "	" $\frac{1}{600}$

Third day at 6 A. M., pulse 96, temperature 102°; skin and conjunctivæ *slightly* clearly. He has vomited several times during the night, but has retained food and medicines; urine clearing nicely. Continued milk diet and prescribed every eighth hour,

℞	Quin. Sulph.	
	Phenocoll aa	grains, v
	Camphor	
	Pulv. Capsici aa	" $\frac{1}{2}$

to be continued for three days, and dismissed him as cured.

Case 4. Creole, octoroon, female, aged fifty. Attention is drawn to her age from the fact that after 40 the disease has been considered as incurable. She has had chills daily for the past three days; at the expiration of to-day's paroxysm she passed a small quantity of port-wine-colored urine, which so greatly alarmed her son-in-law that he immediately called me. On arrival I found pulse 96, and weak; temperature 103°; tongue slightly coated, lips and eyelids very anemic. I gave hypodermically, Morph. $\frac{1}{4}$ grain, Atropia $\frac{1}{150}$ and directed,

℞	Calomel	grains iij
	Morph. Sulph.	" jss
	Atropia "	" $\frac{1}{25}$
	Camphor	
	Pulv. Capsici aa	ʒ ss
	Quin. Sulph.	" j

Div. in pil. no xij

M S. One every six hours, with a glass of skimmed milk every third hour.

Her urine on examination presented—reaction, neutral; sp. g. 1016; considerable albumen; sugar, none; blood corpuscles; blood casts. Second day,

on morning visit I found pulse 92, strong; temperature 102.5°; skin and conjunctivæ very yellow; liver enlarged and tender on percussion. Continued treatment as heretofore. On my afternoon visit I found her pulse 108; temperature 104°; tongue pale and slightly contracted; area of hepatic dullness extending two fingers breadth below the ribs; skin and conjunctivæ *intensely* yellow; condition of urine unchanged. I directed a teaspoonful of castor oil to move her bowels, and to continue as formerly with the addition of a teaspoonful of whiskey in a little water after each allowance of milk.

On the third day, on my morning visit I found pulse 98, *weak;* temperature 102.5°; urine unchanged; she has a tendency to coma and is roused with difficulty; skin and conjunctivæ *deeply bronzed.* During the night she vomited a quantity of bile and gastric juice, and is unable to retain anything on her stomach. Recognizing the awful condition of my patient, already in the shadow of death, I determined, at all hazards, to make an attempt to unlock the secretions and provoke reaction. Measuring out a thirty grain dose of *fresh* calomel I poured it on her tongue, gave her a teaspoonful of water after it and immediately gave her a hypodermic injection in her arm of

℞	Morph.	grains ¼
	Atropia	" $\frac{1}{150}$
	Quin. Bisulph	
	Phenocoll aa	" v

Having other patients to visit I left her to her fate, feeling assured she would be a corpse within twelve hours. I was informed a few hours later by a member of her family that she was sinking rapidly. Shortly afterward I was requested to return because she had only swooned from weakness when raised over a vessel to urinate. My surprise is better imagined than described when I was informed that the urine appeared clearer. I returned at once and found urine *much* clearer, pulse 96, full; temperature 102.5°. I gave nothing, but directed one ounce of milk with a teaspoonful of whiskey every second hour. The bowels had not moved since the attack, but I considered that immaterial as she had taken nothing but liquids.

The fourth day on morning visit I found urine clearing nicely; pulse 96; temperature 99.5°, and she had vomited several times during the night.

I gave hypodermically,

℞	Morph	grains ¼
	Atropia	" $\frac{1}{150}$
	Quin. Bisulph	v

and directed the continuance of the milk and whiskey, with the addition of

℞	Bismuth Subnite	grains vii
	Acid Carbolic	gtts. j
	Aqua Calcis	ʒ j

M. S. Every fourth hour to allay nausea.

Fifth day, on my morning visit I found pulse 96 temperature 100°. The bowels had acted slightly during the night. The urine was of a natural color and abundant. She rested well and felt in good condition. I recommended a continuance of the milk diet every third hour, and

℞	Quin. Sulph.	
	Phenocoll aa	grains v

S. To be given with five drops of Fowler's solution every eighth hour for the ensuing three days.

She recovered and is in perfect health.

The following is an outline of the course I now adopt with an adult, children in proportion.

As soon as I arrive I give thirty grains of *fresh* calomel, followed by a draught of water; and administer, *hypodermically exclusively,*

℞	Morph. Sulph.	grains, ¼
	Atropia "	" $\frac{1}{200}$
	Quin. Bisulph.	" v

every eighth hour until the urine is clear. In the interval support life with an allowance of four ounces skimmed milk every third hour. If the temperature reaches 103° or above I give, hypodermically, five grains Phenocoll or Antipyrine, and repeat when necessary to keep it under control. If the stomach is very irritable I give

℞	Bismuth Sub-nitrate	grains x
	Acid Carbolic	gtts. j
	Aqua Calcis	ʒ j

every third hour until it is relieved.

With a series of twelve cases to date aged from ten to fifty years, both sexes and all colors, in my practice without a death, I now have but little fear for the safety of those who entrust me with their lives when attacked by this disease.

PERINEAL LACERATIONS.*

WM. E. PARKE, M. D., PHILA.

The perineum is that portion of the pelvic outlet anterior to a line drawn between the tuberosities of the ischia in front of the anus. The portion posterior to this line is known as the ischiorectal region. These two together constitute the pelvic floor, which has been aptly called the second diaphragm of the body. Its function (in male and female alike) is to furnish an elastic support to the pelvic contents.

As a matter of fact the brunt of this work falls on two structures, — the levator ani muscles and the perineal fascia. The other muscles are of trivial importance in the matter of support. Much weight has been assigned by various authors to the central tendinous portion of the perineum—the so-called perineal body—as a support to the pelvic structures. To my mind this adds a needless and confusing element to our conception of the physiology of the perineum. What function can the tendinous insertion of a muscle or muscles have apart from the muscles themselves?

The lesions to which the perineum is subjected may be due to accidents of various kinds but are caused chiefly by the process of parturition and are either overstretching or complete laceration of one or more of its compound parts. It is to this aspect of the subject that I desire more especially to refer.

The extent to which the laceration occurs has served as an arbitrary dividing line in classifying these tears. They vary from the separation of a few fibres beneath the skin, to a laceration of all the tissues between the vagina and rectum. The latter condition as a matter of course is easily recognized, but the former is not so apparent without a little study.

The line of tear follows certain well recognized courses. When it is a complete one, that is through all the tissues between the vagina and rectum, it is along the median line. When it does not include the sphincter ani muscle the tear may be in the median line of the skin perineum, but within the vagina this is practically never the case. Here it extends up one or both of the sulci,— the vaginal sheath following the general law of yielding at its weakest point. In recent injuries these lines can be studied to great advantage. It is not an uncommon occurrence, however, to have a separation of the muscle or connective tissue elements of the perineum without a corresponding lesion of the overlying mucous membrane, and very often the vaginal portion is torn without any injury to the skin perineum. A wholly intact skin perineum and in fact an elongated one from overstretching may be associated with a perineum injured to such an extent as to give rise to most of the distress occasioned by such lesions.

The signs by which a non-functionating perineum may be recognized are (1) The increased distance between the meatus urinarus and rectum. (2) A sagging down of the plane of the perineum, thus rendering the anal cleft less marked; that is the anus will be found more nearly on a plane drawn between the tuberosities of the ischia, instead of tucked up as it were in its normal position. (3) If the patient in the recumbent posture be directed to bear down, the anterior and posterior vaginal walls will roll out, more or less, according to the extent of the tear; and, (4) the converse of this, with the examining finger within the vagina, note the lack of resistance offered by the levator muscle when the patient is directed to hold up. (5) The absence on palpation of the central tendinous structure.

The objective symptoms to which a lacerated perineum gives rise depends upon the extent of the tear. If it includes the sphincter ani muscle the extensive rent is apparent on inspection, the triangular piece of tissue constituting the perineum is found to be wanting on palpation, and the ends of the sphincter muscle may be located by the wrinkles and pit in the overlying skin.

*Read before the N. W. Med. Soc., Phila., Nov. 12, 1895.

If the tear is down to but does not include the sphincter ani the chief support of the pelvic organs are taken away, and the more or less remote consequence is that these organs drop down. The uterus becomes retro-displaced and prolapsed, the vaginal walls roll out, the bladder and rectum follow the vaginal walls to which they have a connective tissue attachment, and we have the conditions known as cystocele, rectocele and procidentia.

A partial tear of the levator ani will show the condition above referred to more or less according to the extent of the tear. If the deep structures are not much involved, the perineum may be drawn upward and forward by its muscular attachments toward the pubis, and form to all appearances a tolerably good pelvic floor. One will often be surprised to note the extent of the dropping down of the perineum that occurs under ether in these cases.

Another class of cases are those comparatively infrequent ones when the fourchette and skin perineum is torn in the median line, and the deeper structures are very little or not at all torn. Such cases present a gaping introitus but may leave in reality a very substantial perineum. These cases appear at first sight to be much more serious than they really are, and are in marked contrast to the class above mentioned.

Rarely one will see in a melliferous woman of relaxed fibre, in whom the uterus becomes retroverted and prolapsed a perineum which does not hold the vaginal walls in the normal relation of opposition. In other words it is relaxed not torn.

I have said that the condition of cystocele, rectocele and procidentia following a torn perineum are more or less remote. If the patient is obliged to be much on her feet, and engaged in hard work or heavy lifting, the force of intra-abdominal pressure is brought to bear on the pelvic organs with greater effect, and the weakened pelvic floor yields early.

If the subject of the laceration has the nooks and crannies of the pelvis well packed with adipose tissue, the normal relation of the parts will not be disturbed so soon as in the emaciated subject. If she has had the misfortune to have had a pelvic peritonitis before the descent of the womb, it may be fastened by inflammatory adhesions to the pelvic wall high up, and not descend at all. On the other hand, adhesions may be formed after the descent of the organs, and thus complicate the laceration and displacement by pelvic inflammation.

The subjective symptoms of lacerated perineum vary as would be expected with the extent of the tear. When the levator ani muscle and deep perineal fascia are not involved there are usually no symptoms, even though the fourchette and skin perineum be quite extensively torn. When these two structures, the levator and fascia are torn or overstretched, the patients complain of a sense of dropping down of the internal organs associated with a number of reflexes, such as pain in the ovarian regions, most frequently the left, backache, headache often referred to the vertex, pleurodynia, flatulence, constipation, irritable bladder, tired feeling when on the feet, inability to perform the usual amount of work without fatigue, nervousness and irritability. To these are added pelvic congestion, with its attendant leucorrhea and deranged menstruation. A woman of nervous temperament and subject of this lesion may become a confirmed neurotic. The reflexes are especially apt to be marked in that class of cases in which the muscle is only partly torn and the remaining fibres are on a constant strain to repair the rent by drawing the perineum forward toward the pubis, and no doubt, may be due to the muscle strain just as overstrain of the eye muscles give rise to numerous reflexes in certain individuals. When the lesion is extensive enough or has existed a sufficient length of time for the uterus and vaginal walls to protrude through the vulvar orifice, or for complete procidentia to occur, the reflex symptoms above noted entirely or nearly all disappear. Patients in this condition complain of the sense of dropping down of the internal organs, difficult urination and defecation, and inconvenience from the extruded organs which often become ulcerated. It would seem as if the nerves, which had been dragged upon in the relatively small lesion became overstretched in the extensive one and thus had lost their irritability.

When the tear is completely through the sphincter, the inevitable consequence is that the rectum becomes unretentive, and the patient is subjected to the mortification of passing gas and feces involuntarily, and so consigned to the life of a recluse. Such persons often keep their bowels locked up for a week or ten days at a time and then take purgative medicine aud live in seclusion for a day or two only to repeat this routine.

In view then of the invalidism due to neglected perineal tears—an invalidism varying in degree from slight nervous manifestations to rectal incontinence and extending over an indefinite period—it becomes the conscientious physician to carefully examine his lying-in patients after labor to ascertain whether there be any laceration, and in case there is to make the necessary repair at once. It has been repeatedly demonstrated that the primary operation done with the same care and attention to details as the secondary will yield a good result, and even a better result than can be secured after atrophic changes have gone on for years in the torn muscles, and it offers the advantage that it saves the patient a subsequent operation.

ANCIENT DENTISTRY.

It is strange that dentistry, as practiced to-day, is the awakening of an art which had been blotted out for over 1,700 years; for it is probable that Virgil and Horace, as well as the leading political men in Rome, availed themselves of the services of Cascellius, a Roman dentist. who filled and extracted teeth. The moderns seem to have neglected dentistry until the beginning of the last century; and it is strange that the art should have been practically lost, when it is considered that nearly 500 years before the Christian era teeth were filled with gold and joined together with wire of the same metal. Among the earliest references to dentistry—and it was not spoken of then as a new art—is a Roman ordinance, dated B. C. 453, against the removal of gold from the teeth of the dead previous to burial. Herodotus, who wrote 450 B. C., says that there were skillful physicians 1,500 years before that time, and that they were compelled by law to confine themselves to a single branch of medicine, and that diseases of the teeth was one of those branches. Hippocrates (B. C. 400) referred to joining the teeth together with gold wire. Celsus, the distinguished Roman physician who wrote in the first century, recommended that the decayed part of the teeth should be filed off; and Martial, a Roman poet, states that the Roman ladies increased their personal attractions with artificial teeth of bone or ivory. He also mentions the use of tooth-powder.—*British and Colonial Druggist.*

Enemata of White of Eggs.

Dr. J. Ashburton Cutter writes in the *Journal of the American Medical Association:* "Albumin of egg is valuable to feed to patients when other forms of nourishment cannot be taken, or to reinforce other nourishment. I have known patients to take the whites of eighteen eggs in one day with evident advantage; in some cases the result appeared almost life-saving. Exhibition by the mouth is made in three ways: 1. Raw. 2. Raw with milk. 3. Dropped in boiling water and slightly cooked. Enemata of uncooked whites I have lately used with decided benefit. Administration by a hard rubber syringe. Eggs vary in size and weight, and should be sold by weight; the albumin of an egg varies in bulk from one-half to one ounce as eggs run. Drugs can be administered with the raw albumin; sometimes a little laudanum is needed, but rarely, to quiet the bowel. Patients state that an enema relieves the faint, gone feeling in the stomach, and such relief lasts longer than when the whites are administered per os."

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PHILADELPHIA, SATURDAY, NOVEMBER 30, 1895.

EDITORIAL.

"WHAT'S IN A NAME."

In the last issue of the REPORTER there appeared a "Report of Cases of Suspected Hydrophobia," and the discussion it provoked before the Allegheny County Medical Society at a late meeting.

This subject of hydrophobia, like Banquo's ghost, seems to suffer periodical resurrection and banishments. If only the bald statements of veracious men could be accepted at a definite valuation, much doubt and confusion would be avoided in many instances. This is a case in point where the presentment was not of a theory, but of certain manifestations following certain causes. To be sure, it must be conceded that with some people, it is possible to see almost anything, and ocular evidence is often influenced by preconceived predjudice; so much so that even ghosts of the Banquo order have been seen and testified to by more than one individual.

In regard to hydrophobia, Dr. Srodes sums up the whole matter in the old saying, "A rose by any other name would smell as sweet."

This is the entire matter in a nutshell. The name, hydrophobia, itself is misleading as indicating a fear of water, which is only one of the symptoms, and at best a disputed one. Further, unless one accredits a partial knowledge of symptoms as tantamount to a knowledge of the disease, we know very little about this disorder: a respect in which it differs but little from many other disorders.

The writer, personally, has never seen a case of hydrophobia, nor has he known a man who has seen a case in a human being. But there are many phenomena about which the same might be said. For instance, the writer has never seen a man struck by lightning, and he knows a lot of other people who have never seen the same, but he has no doubt that every year, many are struck by lightning and killed.

A like spirit of charity or justice might be accorded the many patient investigators with the new remedy, anti-toxine. We have met quite a number of intelligent physicians who, without any personal or positive evidence to go on, unsparingly denounce the remedy and everything connected with it, of course including all of its most eminent advocates. While not presuming at the present time or in the present instance to give anti-toxine unqualified approval, the REPORTER would deprecate the tendency of the so-called conservative element in the profession, to fall into the habit of being too suspicious of new things, and too ready to denounce new remedies, and the men who by patient work in the laboratory, have evolved them. With some the stamp of the laboratory is sufficient for condemnation, as though it were not a fact that every drug we have is prepared in the laboratory, either by analysis or synthesis, and the only guides to use are learned by experiment. The difference being that in one case we have epsom salt, and in the other medicated horse-serum. In the *Johns Hopkins Bulletin*, for July and August, 1895, there is quite an exhaustive table of statistics, evenly arranged and quite readable, on the subject. Whether the result of investigation be to induce a trial or a laying of the whole matter on the table, the position of the investigator, at least, would be more tenable.

How many men we meet who, to the inquiry: "Doctor, do you use anti-toxine?"—or any other new thing, for that matter--reply: "No! I am going to wait for some one else to try it first." To be sure it might be argued there are enough men trying doubtful experiments in the medical profession at almost any time, but there is a question of responsibility which comes up, where the physician is a judicious and conscientious man, which may not allow him to put the thing aside simply because it has not been thoroughly tested and proved to his satisfaction by some one else.

Diagnosis of Epidemic Cerebro-Spinal Meningitis.

Scherer (*Centralbl f. Bakt. u. Parasitenkunde*, April 16th) points out that not infrequently a severe nasal catarrh is present at the commencement of an attack of epidemic cerebro-spinal meningitis; also Weigerts has found purulent inflammation of the upper part of the nasal cavities on *post-mortem* examination of some cases. The author has examined bacteriologically the nasal secretion in a series of cases of this disease, and has found Weichselbaum's diplococcus intracellularis meningitidis by microscopical examination of cover-glass preparation or by cultivations in all recent cases. Details are given of the 18 cases examined. The nasal secretion of fifty persons who were not suffering from the disease was also examined bacteriologically, but the diplococcus intracellularis meningitidis was found in two cases only, and in both of these there was the possibility of exposure to the infection. For the detection of the diplococci cover-glass preparations of the nasal mucus are simply stained with a watery solution of gentian violet for a few seconds. The author regards as characteristic the occurrence of three or four diplococci enclosed in a leucocyte, and also the presence in the specimen of many cells containg these diplococci. The appearance with respect to the intracellular position is very similar to that of the gonococcus. The fact that the organism, which is regarded as an exciter of the disease, was found in the nasal secretion in all recent cases which Scherer examined leads him to conclude that infection occurs by the diplococci being inhaled; they are then taken up by leucocytes, which afterwards find their way by the lymph tracts into the brain and membranes. He believes the detection of the diplococcus in the nasal secretion to be of great importance in the diagnosis. The probability of detection is greater the earlier the examination is made. The author regards the nasal secretion as infectious.

SOCIETY REPORTS.

CINCINNATI OBSTETRICAL SOCIETY.

Meeting of June, 1895.

Dr. J. A. Johnston read a paper entitled "THE DIAGNOSIS OF BILIARY CALCULI CONFIRMED BY EXPLORATORY INCISION." (See page 632.)

DISCUSSION.

DR. RUFUS B. HALL: I think the essayist has well said that an uncomplicated operation for stones in a distended gall-bladder is one of the simplest operations in abdominal surgery. He has also outlined the difficulties to be encountered in complicated cases, and it is to these difficulties I confine my remarks. I believe the technique of gall-bladder surgery is not yet complete, and we have no hard and fast rules to guide us in these operations. When the operation was first proposed all felt sanguine that we were going to have easy sailing and cure all our cases with ease and certainty--at least we hoped to do so. While it is true that in uncomplicated cases or those with complications easily overcome, the operation is safe for the patient, and satisfactory to physician and patient, yet the more I see and do of this work the more I am convinced that there are cases which will put the best operator to his wit's end and embarrass him in more directions than one, before he completes his operation satisfactorily to himself.

In reading the literature of the subject, as we have it to-day in the medical journals, I have been impressed with the reports of how operators overcome difficulties, and I have been also impressed with the scarcity of literature upon difficult and complicated operations. Except from certain operators, I see reports of but few complicated cases in the literature. I feel convinced, from my experience in this class of work, that such cases do occur in the hands of all operators. The difficult and complicated operations must come in a given ratio or proportion. How to overcome these I am not here to answer. But I want to point out a few difficulties that are certain to be encountered in this line of work. Among the more prominent is one mentioned by the essayist—stones in the common duct. But this is not the most difficult problem to solve in these operations. I am satisfied that stone in the common duct can be dealt with as well as in the other ducts or in the gall-bladder. But, with a thin gall-bladder filled with a number of small stones, or a large stone, contracted until it is an inch or an inch and a-half long, the size of your little finger perhaps, the gall-bladder no thicker than a piece of paper, and so friable you would rupture it in removing the gall-stones, and the case will indeed be a difficult one to deal with. I have encountered just such cases. If we have stone in the common duct with cartilaginous deposit of long standing, either side of the stone leaving room enough for a small part of the gall to be driven on into the intestine—and this is not imaginary for I have seen such cases—the complications are not easy to overcome. With malignant growths complicating stone in the common duct or in the gall-bladder, even if the difficulty can be overcome by anastomosis with the intestine the operation is not always easy, although it may seem so in theory. If you have a gall-bladder that is fairly healthy or distended, and with a Murphy button or other device you can anastomose with the intestine and switch off the bile, it may be easy; but if you keep at it long enough, you will find cases of a contracted gall-bladder in which you cannot do this.

One of the most difficult in my experience, is a case with a small, contracted gall-bladder practically destroyed, and the cystic duct so obstructed that if you

do remove the stone you cannot get a satisfactory opening through it into the intestine, and anastomosis of the gall-bladder with the intestine is out of the question. Here is a difficulty that is not easy to overcome and one that will probably end in disaster—death. However, the operation—in the majority of cases in my experience—is a very satisfactory one.

It is in reference to the complicated cases and how to overcome difficulties, I wish to hear the opinion of the members. To my knowledge, in more than one man's experience in cases of stone in the common duct, it is impossible to bring the gall-bladder up to the peritoneum; it is impossible to make an intestinal anastomosis; and you cannot remove the gall-bladder because some provision must be made for the gall that is to be turned out in the few hours next after operation. I belive it is a duty to ourselves and our patrons to look for these complications in every obscure bladder operation, and be prepared to deal with them promptly.

With reference to diagnosis in these cases I practically agree with what the essayist had to say. There is one simptom which I think deserves more than mere mention, and that is the locality of the painful point in the early history of gall-stones. The pain is not in the region of the gall bladder, it is not in the region of the liver. Recall these cases; the location of the pain in every one was exactly in the middle line. That is a point that has not been dwelt upon by writers, nor have I seen it mentioned in the journals, but in my opinion it is worthy of note. For months or years these patients complain of pain, always in the middle line, supposed to be almost everything else except gall-stones.

Dr. E. Gustav Zinke: Did you ever observe a case in which a stone was mistaken for a cancer, and upon operation the true condition was shown?

I cannot recall a case now in which a stone occurred. I have knowledge of a case in which a diagnosis of malignant disease was made, and the autopsy revealed a single stone in the common duct and no cancer. I have operated upon a few cases in which we found gall-stones and cancer. Dr. Reed will recall a case several years ago in which I removed several gall-stones and a cancer in the region of the gall-ducts. And while we are on the subject, I will say this: In the late stage of the history of a case of gall-stone, where malignant disease is present, it is not easy to settle the question of malignancy, and I believe it can be done only on presumptive evidence until exploration is made. I remember, two or three years ago, seeing in Williamsburg, Ohio, a man who had lived in Texas. He had a history of gall-stone extending over several years. The patient had lost much flesh, was jaundiced, the liver enlarged to two inches below the ribs. He was bleeding from the gums, and there was every indication that he had not long to live. I believed he had gall-stones and so stated, but did not believe it was a case which promised anything from operation, and advised not to operate because it was fair to presume he had malignant disease as well. The man died a short time afterward, and autopsy proved a number of gall-stones, one in the common duct, and a cancer about the pylorus. That history is representative of a number of cases that have come under the observation of myself, as well as others. I remember, a few years ago, when I first suggested gall-stones being the cause of cancer, I was made the butt of medical jokers about town. I have since investigated further and believe there is more than presumptive evidence that the long-continued irritation from gall-stones predisposes to malignant disease.

Dr. C. A. L. Reed: One of the most serious obstacles we encounter in practice is not the clinical condition revealed by operation so much as the fact that we meet these cases after prolonged delay which leads to these complications. Most serious is the inability of practitioners to have early recognition of these cases. A number of instances illustrative of this fact, have come under my observation. I recall a case from which I removed 123 gall-stones, that had been under treatment by various doctors for chronic dyspepsia giving rise to gastralgia. The case was one in which intermittent paroxysms had never occurred, and there had never been a history of hepatic pain, nor of this median pain (which, however, is a very important distinction).

For three years, as she said, she felt

herself too short in front and unable to stand up with any degree of comfort. I removed a number of stones and then found one obstructing the hepatic duct. The patient has been well since. She had the persistent pain, which was worse a couple of hours after eating. There was some dyspepsia. There was some gaseous eructations from the stomach. The accumulations of gas in the stomach increased the pain, which was never paroxysmal, but always persistent.

There is not much to add to what has been said about the obscure symptomatology of these cases. Sometimes coming on with a peculiar insidiousness, at other times very suddenly, the character of the pain may not be the sharp lancinating kind we speak of as peculiar to the hepatic colic. I remember of hurrying to the case of a practitioner for what he said was a floating kidney that was strangulated. The pain was referred to the lumbar region. On examination a tumor corresponding to the region of the kidney could be felt. We made an incision, found an adherent omentum, pulled it back and found an enlarged gall-bladder fastened down to the renal capsule. That gall-bladder was simply occluded by the impaction in the cervical end of the gall-bladder of a large mulberry calculus. It was not large enough to give the pain peculiar to hepatic colic, but simply a dull, heavy pain, which had confirmed the doctor's belief that he was dealing with a strangulation. I don't believe any one could determine that the tumor was other than simply an enlarged kidney. I confirmed the opinion of the practitioner on my preliminary examination. There was apparently really no trouble with the kidney. This was another variation in the symptomatology of these cases, and a very important variation it may prove in a given instance.

Something has been said about complications; I wish to discuss one which has not been mentioned—this is posterior cicatricial contraction of the common duct. Given a common duct through which a number of calculi have made their transit, or one that has been injured by the long impaction of a stone, and that duct has undergone changes which will lead to cicatrical contraction. It is kept patulous by the elasticity of the bile. Now operate, doing the old operation, fix the fundus of the bladder in the abdominal incision, relieve the duct of the biliary pressure, and there is nothing to keep it in distention and it contracts. I have seen three cases of the kind. One case was operated upon by Dr. Penrose, of Philadelphia, and came under my care afterwards. I wrote to the operator and he said he had removed a stone by disintegration. When I called to see the case, the wife, who acted as nurse, went to the patient, simply removed the plug and withdrew some bile. It was a splendid case for physiologists which, unfortunately, was not utilized. I used the Murphy button and got a very good recovery. The case was in the practice of Dr. Adams, of Dayton, Ohio.

Another case I operated upon over a year ago and did a choledotomy, removed through the incision three large calculi and closed the incision with sutures. The patient made a good temporary recovery, but stools continued pale, and, once in a while, the sinus would reopen under the pressure of the bile current I operated and found cicatricial contraction, but I did not do an anastomosis because there were adhesions among the intestines that rendered it impracticable. The woman subsequently died of malignant disease—cancer of the uterus.

From the third case I removed a number of calculi, which I exhibited to one of the local societies. There was a recurrence of the clay-colored stools. The woman has made a beautiful recovery, but it is an instance more typical than the former of cicatricial contraction of the biliary duct. This complication I do not remember seeing noted in the books, but it is one that certainly exists.

Dr. Zinke: I have never operated for biliary calculi simply because I have never seen a case that required operation at the time of my attendance. All the cases that have come under my charge have recovered without operation. Still, judging from the experience of others, and from the cases I have seen with other gentlemen who have operated, I can well appreciate the difficulties which surround many of these cases.

I desire especially to emphasize the

difficulties which attend the diagnosis of some cases of gall-stone. I remember one case in which, subsequently, either one or a number of gall-stones were removed, where there was not a single symptom of gall-stone present at the time I saw the patient. She was thirty-four or thirty-five years of age, and presented a typical history of dysmenorrhea, with great tenderness of the uterus and a profuse discharge, There were no other symptoms in the case. I suggested, for her relief, curettement. The patient concluded to have the curettement done, but afterwards she was influenced by a friend to seek the advice of a professional brother. I don't know that he at the time made the diagnosis of gall-stone, but when I made inquiry as to what had become of the case, the gentleman who had brought her to me told me that she had been operated upon and that a gall-stone was found.

Another case, which has greatly interested me of late, is a lady, quite prominent in German circles, who has been bed-ridden for several months and has lost flesh rapidly and extensively. She wandered from one physician to another. None, it seems, were able to make a diagnosis. A friend of mine, a very conscientious and competent practitioner, was called in consultation something like six weeks ago, and, after making a most careful examination of the fluid ejected from the stomach, made a diagnosis of carcinoma ventriculi. Shortly afterward he was obliged to leave the city and a Homœopath was called in, who is treating the patient now for biliary calculus. She is getting better, apparently recovering rapidly, after having passed a number of gall-stones. So the diagnosis of carcinoma ventriculi is apparently knocked in the head. The symptoms which indicate the presence of gall-stone are certainly very numerous and very often so masked that the best, most skillful and observing may, at times, be led astray in this kind of cases.

Dr. S. Stark: It was not my' intention to say anything upon the subject of the paper of to-night, but the case referred to by Dr. Zinke reminds me of one in my own family, which, on account of the difficulty in diagnosis, I would like to relate. My father had for years pain in the epigastric region, directly in the median line. He began to lose flesh, finally took to vomiting and had pains of a very severe character, which were considered to be gastralgic at the time. The emaciation continued, and he was scarcely able to keep anything on his stomach. A diagnosis of carcinoma ventriculi was made by a number of eminent local physicians. He also consulted a number of physicians in Buffalo and in New York, who entertained the same opinion. He finally concluded to have the supposed carcinoma removed, and it was found to be gall-stones. Among the most prominent symptoms was the vomiting of food after being in the stomach four or five days. Great quantities of food were ejected. It looked like a dilatation of the fundus due to stenosis of the pylorus, but during the operative exploration it was found that the stomach was really small.

I do not of know any adhesions about the stomach or intestines.

He was found to have a small, cirrhotic liver, and a small gall-bladder. The latter was sewed into the wound and subsequently tore loose. The case in all its features certainly simulated cancer of the stomach, and was so pronounced by some of the best men in the country.

I also wish to refer to a case which puzzled me for a time. A young lady, twenty-five or twenty-six years of age, had periodical pains in the epigastric and right hypochondriac regions, similar to those of gall-stone colic. Finally she passed segments of a tape-worm, and when relieved of the tape-worm had no more trouble.

I would emphasize the fact of the presence of pain in the epigastric region. All my patients complained of pain in the pit of the stomach.

At no time did my father have attacks of jaundice, or clay-colored stools, or bile in the urine.

Considerable has been said about the necessity for operation in cases of gall-stones, and I desire to dwell a little upon when not to operate. I operate upon very few. One of the cases that would demonstrate the non-necessity for interference, I met with in the very beginning of my practice. The patient was a young woman, weighing perhaps one hundred pounds, in whom you could palpate quite readily all the palpable

viscera. She had pain, thought to be due to gastralgia. I saw her subsequently during one of these attacks, and found a very large gall-bladder. Dr. Connor coincided with me in the diagnosis of gall-stone. She has not had an attack since. Seven or eight months ago she was in bed for something else, and I begged the privilege of examining her, and found the gall-bladder considerably enlarged. The treatment was simply palliative at the time. Of course we have all met with patients who have gone to Carlsbad, and after their return have had no more of this kind of trouble. A patient of mine went there last year, passed a few gall-stones, and has had no trouble since. A friend of mine, who during a period of fifteen years had repeated attacks of gall-stone colic, went to Carlsbad ten or eleven years ago. He does not know that he passed any stones, but has had no gall-stone colic since. Surely, not all the cases that come to our hands require operation.

I would class among the operative cases those with suppurative gall-bladder and hectic symptoms; those with stone in the cystic duct producing such constant and severe pain as to require the too frequent use of morphia; and, lastly, those of impacted stone in the hepatic or common bile duct, threatening the life of our patient through cholemia.

DR. PALMER: The remarks of the last speaker lead me to make a few remarks. I have never seen a case of biliary calculi that required operative procedure. That is sometimes required, but it should be recognized, certainly as a *dernier ressort*. Some patients have been told that the Carlsbad springs are very efficacious, and often, they have been very greatly benefited by them. One patient was frequently attended by me, for attacks of pain which I finally came to recognize as due to gall-stone. He went to Carlsbad, and I think has entirely recovered. He has not had an attack for many years. There are other very excellent remedies in the treatment of this disease. Some of these patients can take the Carlsbad salts which we have in this country. Other remedies are the phosphate of sodium and the salicylate of sodium, and I think one of these three remedies should be given pretty constantly over a series of months, before any operative interference should be thought of.

I think these remedies work by dissolving the stones.

[TO BE CONTINUED.]

ABSTRACTS.

THE TREATMENT OF MALIGNANT DISEASE.

Although we have considered the question of malignant disease several times in the past two or three years, the subject is by no means exhausted, and the series of papers, as they appear in the "Annals of Surgery," Vol. XXII, No. 4, are well worth a careful consideration.

The first of the series considers the question of the etiology diagnosis, and treatment of malignant disease, and was the president's address at the opening of the session of the association for 1895.

Like most other observers, Dennis, in this paper, makes the limit of observation under which a cure cannot be expected as three years. In studying the question of the growth of malignant disease, only those cases are taken into account where a careful pathological examination has fully substantiated the clinical appearance.

The author says that the first thing which impresses one in the study of this subject is that there are certain recognized conditions which give rise to malignant disease; the second is that apparently these same conditions exist without giving rise to the disease. It

* Editorial in the American Medico-Surgical Bulletin, Nov. 1, 1895.

is, therefore, most difficult to understand why in one case a carcinoma or a sarcoma develops, and in another, under apparently similar conditions, neither develops. The same law which governs infection in zymotic disease is true when put in operation in regard to infection in malignant disease, but the full interpretation of that law has not yet been made. He does not consider that the germ theory in these cases has been proved, but considers that it probably will be in the near future, believing that eventually the clinical side of the question will be made to "harmonize with the bacteriological." At the present time the weight of opinion seems to be opposed to the germ theory.

Clinical evidence favors the view that changes of an inflammatory nature are responsible for the development of malignant tumors, and the point is emphasized that mechanical injury is associated with the development of sarcoma, particularly of bone, and that peripheral irritation is a prominent feature in the development of carcinoma, particularly of organs and of soft tissues. A series of nine cases illustrating the development of cancer from a traumatism is given. It is easy to understand that in these cases the injury may have acted as a predisposing cause, but it is more difficult to explain the action of a traumatism upon a case of multiple sarcoma. It may be difficult to determine whether there is a special cause which gives rise to the growths, or whether infection spreads from a primary local center. "Multiplicity of growth," is not a proof of generalization of the growth, and in the cases of multiple sarcoma there must be a primary local infection, from which rapid dissemination of the disease takes place, by the blood-vessels. The effect of irritation on the development of carcinoma is also illustrated by a series of cases, the irritation being caused by eczema of the nipple, causing epithelioma; by irritation arising from a red-rubber plate of false teeth (and in this connection it is remarked that this substance should not be employed in the making of sets of false teeth), and by irritation from a scar. It is also stated that nicotine is, without doubt, a source of irritation to the mucous surfaces. Its absorption by mucous membrane is rapid, a single drop placed upon the tongue of a cat prostrating it at once, and killing it in less than 80 seconds. There are about 331 grn. of nicotine in a pound of tobacco, and 5 mg. will kill a dog in three minutes; in view of these facts the cases of epithelioma starting from the part of the mouth in which tobacco is continually held are a most significant fact. Causes arising from sinus irritation are also illustrated. Cohnheim's theory cannot be rejected, and the parasitic origin of tumors has still to be considered.

A careful study of cases of malignant tumor shows, first, that injury or irritation is apparently concerned in the development of malignant disease (whether these agents act as predisposing or exciting causes time only will determine); second, that all traumatisms of the bone should be treated upon sound principles of surgery; third, that every unnatural irritation affecting the integument or the mucous membrane should be removed, the author even strongly recommending the removal of moles, especially those in which hairs are imbedded, since they are often the seat of malignant infection. Papillae and warts and localized scales of psoriasis, with no tendency to heal, should be removed.

The facts presented by his cases suggest the following questions: First, has traumatism or irritation anything to do with the etiology of malignant tumors? second, if so, what is the relation which the cause bears to the effect? third, if not, how can the cases which have been reported in this paper be explained? fourth, if it is admitted that traumatism irritation, separately or together, bear etiological relations to these tumors, how can the presence of these malignant tumors, in the absence of the agencies, be explained? fifth, if the theory that traumatism or irritation can develop a malignant tumor is true, do not the exceptions of that theory demonstrate the purely local origin of these neoplasms? sixth, do not the cases operated upon early demonstrate the correctness of the theory that by the removal of the local infection constitutional infection can be avoided?

Diagnosis, however, is the most im-

portant part of this question, since delay at arriving at positive diagnosis of malignant disease is equivalent to death. The earlier a positive diagnosis is arrived at, the more certain are the prospects of cure.

Time of operation and rapidity of growth, while usually affording strong evidence in favor of malignancy, may be misleading. The age of the patient must always be considered. As a rule, with some exceptions, it is true that carcinoma is not likely to appear before 45 years of age, while sarcoma usually appears under 45, and is the characteristic malignant tumor of early age. Heredity has some influence, the statistics showing that about 4 per cent. of the cases of malignant disease is associated with a history of heredity.

The site of the tumor furnishes some knowledge of its character, as, for instance, sarcoma is the primary malignant disease of bone, while carcinoma rarely effects this structure, except secondarily. The gross appearance of malignant tumors is characteristic. The dusky hue of the skin, the dilatation of the veins over the surface, the great tendency to ulceration, the subcutaneous hemorrhagic extravasation, are points seldom seen in any other tumors except the malignant. The consistence of the growth and local temperature are important, malignant tumors being usually firm and hard, unless they are cystic, in which case the fluid is more bloody, and, of course, a sense of fluctuation is obtained. No rise of temperature would be observable in these cases, unless some acute inflammatory condition had been superinduced.

The presence of pain and cachexia must be taken into account, and the character of the pain is important; for, with the exception of the colloid variety of cancer, pain is present in all varieties of malignant disease; and as this type of cancer is seldom situated at points amenable to surgical operation, this exception is easily remembered. Benign growths are painless unless some inflammatory condition is present, or unless a nerve be included in the growth. In malignant disease the pain is not continuous. It is sharp, lancinating, and tearing, and increases in severity with the development of the tumor, and is not usually increased by the manipulation of the growth by the surgeon. Cachexia is always present, sooner or later, but it is only in exceptional cases that its presence is of any early diagnostic value, and its presence at any time indicates that the growth has advanced a long way in its local effects.

The most accurate information with regard to these tumors may be obtained by harpooning. This method consists in placing a small needle, protected by a cannula, into the interior of the tumor, and then, by a rotary movement of the needle, entangling some of the tissue in the point, which is made like a harpoon. Microscopic examination of the tissue can then be made, and a positive diagnosis obtained. One must remember, however, that this operation may set up inflammatory changes, and particularly if careful antiseptie precautions are not taken.

The prognosis depends on many factors. Complete and radical early removal is the only means of obtaining a good prognosis. Clinical history demonstrates the fact that death is the alternative, unless radical operation is promptly resorted to as a clinical measure. If a radical operation has been performed, and recurrence takes place, is there any prospect of permanent cure by repeated operation? The author considers that operation should never be abandoned so long as the growth can be removed, provided only the metastasis has not invaded the internal organs. This plan will not only prolong life, and relieve physical suffering, but it may have a direct bearing on the ultimate and permanent cure.

The author says that the surgeon, in assuming the care of a patient with malignant disease, should apprise the friends, but not the patient, of the real dangers. It is well also to refuse to take all the steps necessary to arrive at a correct diagnosis, unless assurances are given by the friends that the patient will abide by the result, and submit to the proper operative treatment. It often happens that after using the harpoon a fungous growth starts up immediately, and the patient becomes dissatisfied and abandons the surgeon, to take the advice of some charlatan or quack.

In malignant disease the only safety lies in early diagnosis, in a radical operation, and in a repetition of the operation if necessary. The author reports 12 cases of sarcoma of the glands, with recovery in all but one, 91.66 per cent. He also reports 17 cases of subperiosteal sarcoma in which the results are known, with 3 deaths, one from shock, and 14 cures beyond the three years limit, 82 per cent., which is in marked contrast to Butlin's statistics of 2 per cent., or those of Gross of 17 per cent., of permanent cures. Butlin gives no definite statistics of central sarcoma, and Warren cites 29 cases selected from literature, with 62 per cent. cured. The author has had but one case of this type, and his patient was operated upon, and is well ten years after the operation. Excision of sarcomata affecting bone should not be considered for a moment, and any operation short of complete removal so as to include the entire bone is sure to be followed by a return. In epithelioma of the face, Butlin collected 206 cases, with 21 deaths, mortality 10 per cent.; 59 cases were lost sight of, and 25 cases had not reached the three years limit, leaving 122 whose subsequent histories were known. Of these 21 died during treatment, in 51 there is a recurrence, and the remaining 50 were permantly cured, or a percentage of about 41. The author has operated 8 times with no mortality following the operation. In one the patient died after many local recurrences, 30 operations having been performed, extending over a period of 10 years; 2 died from recurrence within three years; and the remaining 5 were permantly cured—62 per cent. In carcinoma of the genitals, lips, etc., the number is too small to base statistics upon, but there are cases of permanent cure among them.

The necessity of an investigation of carcinoma can be estimated when it is stated that in England alone there are 7000 deaths annually from cancer, and 30,000 patients suffer at all times in that country from this infection. More deaths result from this disease in the United States in one year than the sum-total of deaths due to erysipelas, tetanus, hydrophobia, lightning, typhlitis, gunshot wounds, joint diseases, together with other well-know surgical affections. Cancer causes nearly half as many deaths in one year in the United States as are caused by accidents and injuries of all kinds and descriptions. The statistics show that the disease is greatly increasing, and the larger proportion of deaths occurs in nations which have reached the highest state of civilization. In one year in the United States there were 13,000 deaths from cancer, twice as many among females as among males; 14,000 people in this country are dying each year from this disease.

The author has had 97 cases in which the breast was amputated, with one death from hemophilia, and without any instance of pyemia, septicemia, erysipelas, or abscess; 23 cases were sarcoma and other tumors than cancer, leaving 74 cases or pure carcinoma. The subsequent histories of 41 are known. Three had not reached the three-years limit. There are 38 cases therefore remaining in which the subsequent history is known; 17 show permanent recovery, 45 per cent. The remaining ten passed the three-years limit, giving 77 per cent. permanent cures in the last 15 consecutive cases. The mortality of the radical operations for removal of the breast has been redneed from 10 per cent. (Gross) to 2 per cent. (Dennis), and zero (Weir). In sarcoma of the breast Williams reports no cases of permanent cure, and Gross 13 per cent. The author has had six cases, with 4 cures, the 2 having died from recurrence, 66.66 per cent. permanent cures.

Finally, he advocates that all tumors, whether benign or malignent, should be removed. Benign tumors should be extirpated, because a certain proportion of them undoubtedly degenerates into malignant tumors at special occasions or periods of life, and certain malignant tumors remain quiescent for years, giving rise to the idea that they are innocent growths. The mere presence of a tumor in the body, especially in the breast, argues in favor of its malignancy, and it therefore should not be permitted to remain. There is no benign tumor in which it has not been demonstrated that it may assume malignancy under favorable conditions. Out of the 649 cases of tumors of the breast collected by Gross, 587 were malignant, and only 62 innocent.

In the operative treatment of cancer of the lips, tongue, floor of mouth and pharynx, Dr. Phineas S. Connor says that no operation fulfills the indications that does not effect the extirpation of the disease, but when, from the location and extension, cancer cannot be thoroughly cut away, that operation is best which, saving life for the time being, secures the greatest immunity from secondary growths, external or internal. Even if nothing can be detected upon palpation, it is certainly wise, in any case in which cancer of the lip has existed for several months, to open up submaxillary space and thoroughly examine it, for in this form of cancer, as in others, infected glands may be found, the presence of which cannot be determined through unbroken skin. Improvement in the treatment of cancer of the lip must lie in earlier and more thorough operative interference. Cancer of the tongue is present in about ten per cent. of all the subjects of cancer, and nearly always glandular enlargement is present. In about 10 per cent. of the cases in recent years the patients have promptly died. The percentage of recurrences is at least 75, probably nearer 95 if all the facts were obtained. The growths are found commonly in the glands surrounding tissues. The unremoved portion of the tongue, and still more its stump, when it has been taken away entire, comparatively seldom show recurrence after proper operation. Though life is not saved, it is unquestionably prolonged and made more comfortable. An early operation is essential. Far better that occasionally a tubecular or syphilitic tongue should be removed than a carcinoma allowed to widely extend. Any operation through the mouth unless done very early, and for a limited disease of the tip or, possibly, of the side, should be supplemented by an exploratory incision in the submaxillary region and the taking away of infected glands. The whole disease in other cases can only be reached through the neck and floor of the mouth. Cancer of the pharynx is usually secondary, and associated with grave disease of the tongue and cheek, so that operative interference is as a rule, useless. If primary and united to the velum, it can be removed by knife, scissors, or the cautery, and, if done early and radically, will probably prevent recurrence. If the tonsil is infected, it is probable that the lymphatics are involved long before the case comes under the observation of the surgeon. Recurrence in any given case may be reasonably expected in from three to six months.

The treatment of cancer of the breast is discussed by J. S. Wight. He divides the tumurs of the breast into three kinds: first, those in which the surgeon may operate with the hope of cure; second, those in which an operation may give temporary relief; third, those in which an operation is impossible and unadvisable. He tabulates the following rules: First, the minimum of time should be taken for the operation; second, the tumor, as well as its effected environment, should be removed; third, the earlier the operation the more successful will be the result; fourth, in the case of incipient tumor of the breast the entire organ must be removed.

John Homans discusses the question of the operative treatment of cancer in the female generative organs. Cancer of the ovary is usually secondary to cancerous infections of the other abdominal organs, and is irremovable. Occasionally, however, these organs are the seat of primary cancer. These cases usually occur in elderly women from 50 to 70 years of age, and the tumors are somewhat larger than the fist. In 10 per cent. of the cases operated upon for removal of the ovary with cancer, there has been recurrence in the cicatrix or in the internal organs. Where but one ovary is infected (or even both, for that matter), but the disease has not extended to other organs, it may be removed with a fair prospect of prolonging life for some years and perhaps effecting a cure. As much of the broad ligament and tube as possible should be removed, together with the diseased organ. The most frequent varieties of cancer of the uterus are epithelioma, medullary-carcinoma, and adeno-carcinoma. An operation for removal of cancer of the uterus, of whatever variety, must include the whole organ, including the ovaries, tubes, and broad ligament. In cases in which a thorough radical operation is impossible, the surgeon must be contented with thorough curetting and thorough cauter-

ization, with the thermo- or the Paquelin-cautery. The author prefers the vaginal route, or if the tumor is too large, the combined operation. He therefore considers that the abdomen should be prepared for the operation as well as the vagina, in order that this field may be ready in case it is necessary to invade it.

Cases of adeno-carcinoma almost invariably recover from the operation, and are almost always cured. But the only hope in the other case lies in seeing them before the neighboring structures are involved, so that the whole invaded tissue may be thoroughly extirpated. He has operated upon 16 cases of epithelioma; 6 recovered, and 10 died. One is alive, condition unknown, five years after the operation. One four years after the operation has a slight recurrence; one two years and one month after the operation, is in good health; one, fourteen months, in good health; one four months, and another, three months, after the operation. All the remaining 10 died within a year of the operation, 3 within a week. All were hopeless cases. Of the 6 cases of adeno-carcinoma, 5 are living and well, without recurrence. One died from the effects of the operation. Cancer of the vagina is seldom primary, and should be removed radically as soon as seen. Cancer of the clitoris and urethra, or rather of the meatus, always returns rapidly, and it is of no value to remove these growths except to get rid of a bloody and offensive discharge for a short time. With primary cancer of the labia, the prospect is better.

Operative treatment of cancer of the male genitals is the subject of the paper by Hunter McGuire. He says one case of cancer of the penis will be found in about every 100 cases of cancer, appearing usually in men between 45 and 70 years of age. As soon as the diagnosis is made, radical measures should be advised. Syphilis is the only disease with which it may be confounded. Both patient and surgeon are open to blame for delay; both hope that the ulcer may be syphilitic, and so treat it; but the prognosis is bad if the operation is delayed, and especially if iodide of potash or mercury is used constitutionally. After glandular infection has appeared the prognosis is almost, if not quite, hopeless. In the early stage, complete excision of the ulcer and its hardened base is often sufficient. The recurrence may often be charged to incomplete operations. In cancer of the scrotum remove all of the diseased part. If the glands in the groin are enlarged and indurated, they should be removed, and recurrence should invariably be treated in the same way. Cancer of the testicle usually occurs in persons between 20 and 40 years of age. It is almost unknown in the very young, and is rarely seen over 60. After castration, permanent cures are uncertain. Curling reports 4 cases cured. In 12 of Winiwarters cases only 1 did not have a return; while Kocher reports 6 cases who are alive and without return of the disease at periods varying from one to ten years. Nevertheless, life is prolonged and the patient made more comfortable. When the disease has progressed so far that secondary masses can be felt in the iliac fossa and lumbar region, and especially if cachexia is marked, the operation should not be performed, no matter how urgently the patient may demand it.

Cancer of the prostate is a comparatively rare disease. The symptoms of hard cancer of the prostate are: First, frequency and difficulty of urination, which is greater and more urgent than can be accounted for by the size of the prostate or the amount of residal urine; second, it is difficult and often impossible to introduce a metal sound into the bladder through the displaced urethra; third, pain in the pelvis, often extending to the thighs and legs, is continuous; fourth, blood sometimes precedes or follows the stream of urine; fifth, the prostrate is enlarged and hard as a stone, and the finger in the rectum can often detect induration of one or both of the vesiculæ seminales. Soft cancer is not so readily recognized. The symptoms are: First, rectal tenesmus, blood and mucus in the evacuations, and afterward the bladder symptoms appear. Examination shows a large, soft, elastic tumor springing from the prostrate, pushing back into the rectum, and eventually breaking into that organ and filling the pelvis. In this condition sedative treatment is all that can be done, and possibly it may be necessary to form an

artificial anus by colotomy. No radical operation for the permanent cure of cancer of the prostate has yet been devised Peritoneal drainage should never be attempted. Suprapubic cystotomy and drainage give physiological rest to the bladder and prolong life in these cases. The author does not believe that much is to be gained by any attempt at extirpation when this organ is the seat of cancer.

The modern operative treatment of cancer of the rectum forms the subject of the last of these papers by A. G. Gerster. He considers the matter under the following heads: First, the modern methods of attack employed in extirpation, and the after-treatment; second, preservation of, or substitutes for, the sphincteric function; third, remote sequelæ of these newer methods. After a careful reveiw of the various methods of removal of rectal tumors, the author criticises the various methods. He says almost all have something commendable in them, but none of them is entirely free from objection. Kraske's original operation and Hochenegg's plan deserve the preference in high amputations of the rectum. Zuckerkandl's and Rhen's vaginal proceedures have a limited applicability in favorable cases both for amputation and resection.

Operation upon this region is facilitated by a decided elevation of the pelvis, and this also diminishes hemorrhage. Careful and methodical dissection is preferred. Blunt dissection may be employed where it is feasible, and division of resistent bands by double ligatures may be employed where the former is impossible. Care must be taken not to tear the middle hemorrhoidal artery, for fear of gangrene of the stump or uncontrollable hemorrhage. It makes little difference what instrument is employed in dividing the sacrum.

The after-care of the divided rectum will depend upon whether an amputation or a resection was done. In high amputation. the nutrient vessels of the mesentery must be preserved, lest the entire rectal stump should slough, and this is most difficult in that part of the rectum which adjoins the flexure. Lateral incisions through the peritoneal attachments are permissable, but cutting into the mesenteric line itself will certainly be followed by disaster. Lateral incisions of sufficient length will permit the separation of the gut from the sacrum by the use of the finger-tip; and the higher this detachment is carried, the less tension will be encountered in bringing down and attaching the stump to the upper angle of the external incision, especially when portions of the sacrum have been removed. A few stout silk sutures suffice to anchor the gut in the wound. Where the peritoneal cavity has been invaded, the peritoneal wound should be closed as soon as possible. The recesses of the wound should be packed loosely with iodoform and absorbent gauze. Where it is possible to preserve the sphincter and the lowermost portion of the gut, two portions should be reunited. Whatever fever develops a careful examination of the wound and its recesses should be made—if necessary with the aid of anesthesia. There is decided difference of opinion in regard to the management of the parts after the operation; some authors preferring to act upon the bowels early, others to control them for some time by means of opiates. This must remain a matter of individual preference. The patient, however, should be persuaded to leave the bed, and get about, as early as possible.

Wherever possible, of course, the sphincteric apparatus should be preserved, and in this preservation its nerve supply should be protected by preserving the integrity of the upper three pairs of the sacral motor nerves. At the present time, apparently, the best plan for providing a substitute for the loss of the sphincter, in cases where it cannot be preserved, is that of Czerny, which consists in simple torsion around its own axis and the extremity of the rectal stump, This is usually sufficient to retain the fecal matter until abdominal pressure is exerted by the patient.

In regard to the sequelæ. prolapse has sometimes followed, sometimes the mass even containing small intestine, representing an anal hernia. These conditions can only be corrected by amputation, or by proctopexy or colopexy, the anchoring by suture of the rectum or colon so high, up against the abdominal wall as to preclude the possibility of

prolapse. Procedentia uteri has also been noticed. Sacral fistulæ are the most common and troublesome difficulties. They are usually directly due to defective suture or secondarily due to late ulcerative proctitis following stricture. Stricture is nearly always present and needs constant treatment by soft-rubber bougies. If it is neglected, it will contract and lead to other complications. Many of the sacral fistulæ are readily healed as soon as the rectal structure is disposed of. In the more inveterate cases, however, plastic operations may have to be resorted to. If the fistula is near the anal aperture, the bridge of tissue may be divided, as for ordinary fistula in ano, and the fistular track excised and the wound sutured.

CURRENT LITERATURE REVIEWED.

IN CHARGE OF SAMUEL M. WILSON, M. D.

A Case of Argyria.[1]

The staining of the skin by prolonged use of nitrate of silver is somewhat uncommon now, owing to the lessened use of this drug for nervous diseases,

Sergeant L., a pensioner aged seventy-seven years, was admitted to Madam Steevens' hospital in 1871. The symptoms of locomotor ataxia were marked, and a stick was required in walking. One third grain of nitrate of silver was given three times daily for a fortnight, stopped for a week and resumed, etc. After six weeks of treatment he suddenly left the hospital, taking the prescription and continuing the drug for two years. When seen in 1873 his condition was much improved. The drug was continued at intervals until 1876 when owing to a return of the symptoms, iodide of potash was given for a short time but without benefit, and the silver was then resumed. In 1882 the ataxic symptoms had disappeared, and occassional attacks of pains in the back and loins with nausea were relieved by the temporary use of nitrate of silver. I now noticed that while his general health was excellent, his face, hands, and to a less degree, his body were of a slaty gray color. In 1894 he had been using the drug at intervals for twenty-three years and had taken over two thousand grains in that time.

Like lead, silver is capable of poisoning those working with it, and like it causing symmetrical extensor palsy. The smallest quantity, which has been known to cause argyria, has been stated at four hundred and fifty grains. but seventeen hundred and forty grains were taken in a year by another case before staining appeared.

Repeated local applications have given rise to argyria in some instances, and the case is reported where a large open wound was treated with a one per cent. solution of nitrate of silver, after which the mucous membrane of the cheeks, gums and the under surface of the tongue became of a blue-black color, and the patient died of exhaustion from diarrhœa in eight days.

The case furnishes certain lessons:

1. No precautions can guard against the staining that follows the prolonged use of nitrate of silver.

2. The health of the patient has not suffered in the least from the use of the drug during the long series of years since 1871.

All attempts to produce decolorization have proved practically useless. Large doses of iodide of potassium with mercurial vapor baths have been recommended, but the utility of this method seems doubtful.

To my mind the most important lesson connected with our case has been the marked beneficial effect of nitrate of silver on a patient who presented most, if not all of the prominent symptoms of locomotor ataxia. That this was not a mere coincidence is shown by the return of the symptoms on the cessation of the drug and their repeated relief on resuming its use.

[1] W. C. Tweedy, M. D., *The Dublin Journal of Medical Science*, July 1895.

Tha Influence of Ether Narcosis on the Genito Urinary Tract.[2]

The fact that some patients develop unexpectedly, unfavorable symptoms after operations of a trivial character, led us to give particular attention to the secretion from the kidneys and to the condition of the bladder. The urine of cases to be operated on was carefully examined for several days previous to observe the effect of the ether. Israel has shown that in one-third of the cases with normal kidneys chloroform anæsthesia will cause irritation for two or three days.

In sixty-two operative cases, in which the urine was found normal before etherization sixteen remained normal, and in forty-seven abnormalities occurred. In eight cases irritation of the kidneys, ureters and bladder were noted, as shown by albumin, cylinders, renal, ureteral and bladder epithelium. In fifteen cases signs of kidney irritation only were observed, and in twenty-four cases the bladder was affected. The irritation lasted for two or three days only in twenty-one cases, while in the remaining forty-two the urine had not returned to the normal condition at the termination of ten days after the etherization.

The effect of etherization on general tissue metamorphosis, apart from any effect on the kidneys, is shown by the effect on the specific gravity of the urine. In fifty cases it was markedly increased.

[2] Drs. John B. Deaver and Carl Frese, *University Medical Magazine*, July, 1895

The necessity of examining the urine of every patient to be anæsthetized is again emphasized by these facts. As careless administration of ether may spoil the result of an otherwise perfect operation, we desire to sound a note of warning to etherizers, who often attend to their responsible duty in a somewhat perfunctory manner.

Two Cases of Bromide Eruption.[3]

It so happened of late that within eighteen months I saw two cases of skin eruption of precisely similar character, the like of which I had never seen during all the previous years.

Mrs. A., 19 years old, married five months, developed shortly after marriage endometritis and salpingitis. For some weeks before I saw her she had been given for the relief of nervousness fifteen or twenty grain doses of bromide of potash several times daily. She was given other drugs and operated on for tubal and uterine disease.

Shortly after stopping the bromide there appeared on the forehead an eruption that looked at first like chicken-pox. This extended over the body—the vesicles changing to sluggish pustules. After the eruption had lasted about four weeks I saw the case, in consultation, and found the patient much emaciated, with a score of prominent, flat, firm, whitish-yellow lesions on the face, which for want of a better name I would call pustules. They had rather a warty look, their surfaces being uneven like that of a raspberry, and they contained very little pus, the contents being cheesy. They varied in size from as large as a pea to a small cherry and were indolent with a small zone of redness around them. Similar discrete lesions were found on the arms and legs, and on each leg was also a single large, irregular, elevated firm lesion, placed with almost absolute symmetry. Where the crusts had fallen from the lesions on the forehead, slightly pitted, faded red scars were left. When a crust was forcibly removed a surface somewhat like that of a raspberry was exposed, showing a number of bleeding points

The husband of the patient confessed to several attacks of gonorrhœa, but absolutely denied syphilis, but a doubtful diagnosis of syphilis was made. When seen again, ten days later, a number of the old lesions had healed leaving scars and stains, but there were some new lesions on the trunk. On the legs the large lesions had formed irregular, sharply cut, painful ulcers, with exuberant granulations. The general health was improved.

The case was treated with protochloride of mercury internally and ointment of the ammoniate of mercury and mercurial plaster locally, and made a good recovery in a few weeks. Sometime later she called to ask if the red scars could not be effaced. This case puzzled me until I was shown a little child with a few large pea sized lesions on the face and buttocks which resembled impetigo contagiosa. A few weeks later I again saw the case and the lesions had assumed the same form as in the previous case, and also showed some large lesions, with a central depression, resembling molluscum. I and my colleague decided that this was either an unusual form of syphilis or a drug eruption. I looked up the previous treatment of this case and found it had been given bromide of potassium in the usual dose for a child of this age, but as in the first case had taken none for some weeks.

The child wandered into other hands and made a good recovery in a few weeks under arsenic. There was absolutely no syphlitic history. I am convinced that both of these are examples of a rare form of drug eruption, one of the multiform manifestations of bromide intoxication. The peculiar features are the length of time between the stopping of the drug and the appearance of the eruption, the long continuance of the appearance of new lesions after the stopping of the drug, and the character of the eruption. None of these things are against the diagnosis, but rather favor it. Crocker gives as one of the diagnostic symptoms of bromide eruptions that the lesions sometimes do not appear for some days after the drug has been stopped, and continue to appear after ceasing to use it.

[3] George Thomas Jackson, M. D., *Journal of Cutaneous and Genito Urinary Diseases*, November, 1895.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

The Post-Mortem Signs of Drowning.

Dr. G. De N. Hough, in a paper read at the Annual Meeting of the Massachusetts Medico-Legal Society, June 11, 1895, thus summarizes: (*Boston Med. and Surg. Jour.*, Vol. cxxxiii, Nos. 17, 18.):—

If we have a particular case under examination what conclusion can be drawn?

From our examination of the exterior we can say "This body has been lying in the water," basing our opinion on the presence of more or less of the following signs:

(1) Peculiar rose-colored or bright-red suggillations.

(2) The order in which the parts have been affected by putrefaction.

(3) Rosy patches on the skin of the inner surfaces of the thighs and front of the thorax.

(4) Cutis Anserina.

(5) Retraction of penis, scrotum and nipple.

(6) The extent of subcutaneous emphysema.

(7) The condition of the epidermis, particularly of the hands and feet, knees and elbows.

(8) The condition of the nails and hair.

(9) The appearance of the various parts of the eyes: (1) The so-called fish-like expression, (2) the phlyctenular eminences and cloudy appearance of the cornea, (3) the sclerotic edema, (4) the change of color of the iris.

(10) Abrasions about the bridge of the nose.
(11) Sand, mud, fragments of water plants, etc., in the nostrils and mouth.
(12) Mud, etc., under the nails.
(13) Fragments of plants, etc., grasped in the hands.
(14) Erosions of various parts of the body.
(15) A fine-bubbled froth at the mouth and nose.

To these will perhaps be added after we have made our internal examination :

(16) Edema of ary-epiglottic folds.
(17) Fluid in the larger air-tubes (and in this fluid very likely foreign particles may be found suspended).
(18) Fluid in the stomach.

Now among all these signs there are none that are incompatible with the cause of death being drowning, and a few of them suggest this quite strongly, or at least suggest that the person was alive when he went into the water. These are :—

(1) Cutis anserina.
(2) Retraction of penis, scrotum and nipple.
(3) Fragments of water-weeds, etc., grasped in the hands.
(4) Froth at the mouth and nose.

In order to be able to say positively, "This person was drowned," a careful consideration of all the internal organs, and in some cases of extraneous circumstances, must also be made.

(1) It appears to me that the absence of any traces of external violence is a very important matter; and if such traces exist, the determination of whether they were inflicted before or after death, and whether they are sufficient to account for the death.

(2) We must consider the general indications of asphyxia, by which I refer to the congestion of solid viscera, the overloading of the whole venous system, the injections and ecchymoses of mucous membranes, the fluid condition of the blood, and the presence of subpleural and subpericardial ecchymoses. In proportion as more of these are present, so much the more positive will our diagnosis be, for we must remember that drowning pure and simple is but one form of asphyxia.

(3) Evidence of chronic or acute disease must not be neglected, for by the presence of such disease the resisting power of our subject will be diminished, and he will require (if I may use an Irishism) less drowning to kill him, and consequently the signs will be less pronounced. Such disease, moreover, may furnish a motive for suicide

(4) Finally, we have certain signs more or less special to drowning which, taken in connection with the signs already referred to, make our diagnosis in many cases positive. Some, perhaps all, of these signs, yet require investigation to thoroughly determine the limits to which their value is confined ; and I shall take the liberty, even in this assemblage of experts, of calling some attention to this part of the subject.

(1) Bilateral lacerations of the sterno-cleido mastoidei and pectorales majores. These are mentioned by Paltauf only ; more observations are needed.

(2) Liquid in the pleural cavities ; lesions to which this might be due being absent. Comparative analysis ought to be made of this fluid, of pleural effusions, and of the liquid that collects in the pleural cavities in consequence of putrefaction.

(3) A fine-bubbled, watery, whitish or rosy froth, non-adherent to the walls of the air-passages in which it is found. Inasmuch as the most eminent authorities are not agreed that this can, by any physical characteristics, be distinguished from the similar froth found in other forms of suffocation and in certain diseases, let us make comparative analyses of all these froths and determine, if we can, any chemical differences that exist between them.

(4) The presence of the drowning fluid in the very small bronchi and the alveoli, with or without suspended foreign substances. The question still at issue here is, How deeply can fluids penetrate into the bronchi after death ?

(5) An infiltration of the pulmonary parenchyma with fluid. The presence of pleuritic adhesions will enable us to distinguish this condition from edema in many cases.

(6) Subpleural extravasations of the drowning fluid mixed with a little blood.

(7) Increase in the volume of the lungs, associated with increase of absolute weight, increase of specific gravity and a peculiar doughy consistence.

(8) Demonstration of hemorrhagic foci where the bronchioles enter the alveoli.

(9) Presence of water in the stomach. The very fact that this may enter after death is still contested, and we only know in regard to the conditions necessary for such entrance that it is favored by pressure, for example, by the body being sunk deep in the water.

(10) Water in the intestine. Unless great pressure is brought to bear on the body, water will not pass from the stomach to the intestine. How much pressure is required and the influence exerted by putrefaction upon this pressure, we have yet to learn.

(11) A special and extreme hydremia of the liver. I cannot believe that it accords with the true scientific spirit to ridicule, as some authors do, the statements of Lacassagne on this point. Careful comparison of the condition in this respect, of livers of persons dead of all sorts of violent deaths would be much more to the point.

(12) An actual dilution of the blood with the drowning liquid.

In conclusion, gentlemen, I wish to say that I have refrained from enumerating my sources of information, with the object of shortening the time required for the reading of my paper. I shall be pleased to give any who wish to consult them all the references at my disposal.

To Preserve Urine.

Dr. Leffman finds chloroform the most satisfactory of the various agents suggested for preserving speeimens of urine. About six or eight drops are added to each fluid ounce, and the mixture well shaken. The excess of chloroform soon collects at the bottom of the bottle Samples so treated will keep for months, even in the hottest weather. Chloroform promptly reduces Fehling's solution. If, therefore, it be desired to test for sugar, the chloroform must he removed by boiling the liquid ; or, better, the bismuth or phemylhydrazin test mnst be used. Chloroform does not interfere with these nor simulate sugar.—*New York Medical Times.*

The Heart in Rheumatic Fever.

Henry Conkling (*Brooklyn Med. Jour*, 1895. IX, p. 409). In severe diseases. the heart, lungs, and brain are affected either as a part of the disease or as a complication ; but the term complication, as applying to cardiac affections in rheumatism, is a misnomer. If rheumatism begins in the knee joint, and later the ankle should become affected. it would not be considered a complication. In the same way rheumatic endocarditis or pericarditis is a part of the disease. The tissues in and about the thorax are similar to the tissues of bony articulations.

At every visit the heart should be examined in a case of rheumatic fever. The author depends on two methods of examination : (1) Palpation, and (2) auscultation. This applies in the present article only to endocarditis and pericarditis By palpation is learned the presence of irritability ; from auscultation, accentuated sounds.

The foregoing symptoms are not found in other fever patients. Endocarditis or pericarditis introduces a new element, either a fullness of the vessels or a swelling of tissue or actual exudation. Any of these can disturb the normal action of the heart. Irritability here means the presence of a foreign body ; accentuation, either in the right or left heart. indicates an attempt to get rid of that same body. The author has found few symptoms of aid in diagnosticating endocarditis or pericarditis.

Pain is frequently never present, but dyspnea may be. Facial expression is not always of aid. Restlessness is sometimes absent. No hint is given by gastric or renal disturbance, In a heart with chronic valvular disease there is a changed nutrition. The irration of the poison in the body, and the fever added. give an extra burden to the heart Rheumatic pleuritis is painful. If effusion occurs it rapidly disappears. A rheumatic pleuritic effusion is apt to have an attending endocarditis. To detect the beginning inflammatory change in or about the heart, repeated examinations must be made by the methods mentioned above. From palpation may be learned :

1. Irregularity of apical impulse.
2. Disturbance of rhythm in diastolic rebound.
3 Friction fremitus.
4. Reduplication of impulse.

In fever-hearts there may be a negative increase of impulse, but rapidity of the heart is not always present, the pneumogastric not having lost its full control. The sweeping move ment of the heart when it rebounds, makes a movement against the chest wall, and when this is increased, it indicates a new force. The greater the irritability the greater this movement against the chestwall. Friction fremitus is exocardial or pericardial. It may be felt about the base at the great vessels about the right anterior ventricular surface or toward the apex. If very great at the latter position. it prognosticates adhesive bands. The difference in contraction between the right and left ventricles gives two impulses at different times, where normally two should be present at one time.

From auscultation may be found :

1. Absence of or change in sounds.
2. Friction clicking sounds.
3. Exocardial murmurs.
4. Endocardial murmurs.

In this connection there seldom is accentuation at the apex, but the aortic or pulmonary second sound, one or the other, seldom both. is accentuated. It means some basic pericardial change seldom, so early, endocraditis. Frequently occurring rheumatic inflammatton about the great vessels will cause a click. One or more short sharp explosions are heard. due to the change of position from movement of the inflamed tissue. If the stethoscope is placed lower the clicking sounds disappear and exocardial murmurs are heard, due to pericardiol inflammation. They bear no relation in time to the cardiac sounds. Exocardial murmurs indicate the formation of a "white patch." A swelling of the mitral valve not touching the chords gives rise to a murmurish quality of the first sound, because coaptation is not complete. Endocordial murmurs may be heard about the pulmonary, mitral, or aortic orifice. The inflammatiou rarely goes to the aorta near the valves, and so no extra valvular sounds are heard. Of all the murmurs, the pulmonary, systolic in time, disappears the quickest.

The heart must be watched as is a joint, not caring for arteries or veins, nor for any transmissions. If it becomes diseased it must be treated. If the disease disappear the heart must still be watched. If it contiuue there must be change of treatment. A rheumatic joint is treated to rest and position by the patient. Is a rheumatic heart so treated? Murmurs of the right heart disappear because the right heart governs only a limited circulation. The pulmonary recoil is slight. The aortic and mitral murmurs remain and become permanent, because as soon as the pain in the joints is gone the patient gets up and goes about, putting extra work upon the heart and movement upon weak tissue. So to prevent valvular disease, keep patients quiet and recumbent until the sounds and rhythm are normal or, at leas , have reached a minimum. Too much stress cannot be laid upon absolute rest. Prevention is better than cure.

Treatment of Urticaria.

M.C. Berliner (*Rev. de Med. et de Chir.*, July 25, 1895) To quiet the troublesome itching resulting from the urticarial lesions, the author makes the following recommendation, which in his hands, has proved the most successful : The weals are moistened with cold water and rubbed for ten to fifteen seconds with a few grains of kitchen salt which adhere to the previously moistened pulp of the index finger. One feels at first a slight burning, followed promptly by an agreeable sensation of coolness, and a notable diminution or even cessation of the itching, after which the papules usually disappear rapidly Upon the area thus treated, one may then apply a little oxide of zinc ointment or rice or almond powder. If the urticaria is extensive, it is better in order to avoid too much irritation of the skin, to apply the salt frictions to successive portions, and not over the whole surface at one time It goes without saying that one should not neglect the necessary modifications of the diet, and if the urticaria be of toxic origin, a purgative should be prescribed, the best of which is calomel. Lukewarm baths may also prove useful.—*Am. Med.-Surg Bulletin.*

Water Tests.

The August issue of the *Iowa Health Bulletin*, published by the State Board of Health, gives a simple test for sewerage contamination or pollution from privy vaults, which can be used by any one. To a glass of water add four drops of a saturated solution of permanganate of potash and let it stand two hours. If decomposing organic matter is present in a dangerous amount the rose color will change to dull yellow, and if there is a large quantity of decomposed organic matter in the water the rose color will in time completely disappear. If it turns paler but still retains a red tinge, it indicates a slighter degree of impurity. Another simple test of the quality of drinking water is to place twelve grains of caustic potash and three grains of permanganute of potassium in an ounce of distiiled water. If to a glass of water one or two drops of the solution imparts a decided color the water is drinkable; but if the solution immediately loses its color and disappears, the water should be rejected for drinking purposes.—*New York Medical Times.*

SURGERY.

The Surgical Treatment of Laryngeal Tuberculosis.

Rettei (*Wien. Klin. Woch.*, Oct. 17th, 1895) holds that on this question statistics do not always form a reliable guide. He relates two cases indicating opposite sources of error. The first was that of a woman, aged 27, with extensive tuberculosis disease of both lungs, tuberculous infiltration of the interary-tenoid mucous membrane, ulcers on the posterior ends of the vocal cords, and almost com plete aphonia Rettei declined to operate, and symptomatic treatment only was adopted. The laryngeal condition cleared up to a large extent, and the patient recovered her voice almost completely. The improvement persisted for some months; then a fresh laryngeal attack came on with odema of the lungs, proving fatal in ten days. Had this case been operated upon, the temporary cure would no doubt have been put down to the treatment. The other case was that of a man, aged 34, with tuberculosis infiltration at both apices. He had considerable infiltration of the interary tenoid mucous membrane, slight thickening of the right vocal cord, and affection of the epithelium of the right processus vocallis and the adjoining part of the right arytenoid cartilage. Curettage was practised for some days; a spreading ulcer resulted with no tendency to heal. Dysphagia came on with violent paroxysms of coughing, the lung troubles made rapid progress, and the patient died in six weeks from the commencement of the treatment. Here it is, of course, difficult to say what would have been the event if the patient had not been curretted, but Rettei believes that the fatal issue was hastened by the treatment. He considers that operative interference should only be undertaken when the lung process is either not advanced or has been stationary for months, and when the laryngeal affection is more or less localized; there must eieher be a prospect of benefitting the patient's condition, or danger in delay from threatening dyspnœa or dysphagia. Operation is contraindictated in advanced or rapidly advancing lung disease; if there is no imminent danger from the laryngeal condition; if there is high fever, or if the laryngeal disease has so far advanced as to have involved the deep as well as the superficial structures. The first case shows that amelioration may occur in the larynx even when the affection is very severe; the second that surgical interference may at times hasten the morbid process, not only in the larynx but in the lungs as well. The value of statistics is much discounted unless these indications are adhered to; thus some operators record successful results in two-thirds of there laryngeal operations, but include many cases in which curretage was unnecessary. Through such statistics it is easy to be led into operating on unsuitable cases to the danger alike of the patients and the method.

Fatal Fat Embolism after Forcible Straightening of Both Knee-Joints.

Ahrens (*Bruns' Beitr. z. Klin. Chir.*, xiv., 1) reports this case. A woman, aged 53, had ankylosis of both knee-joints in a right angle position. This was to a great extent corrected by continuous extension. Afterwards, under ether, they were completely straightened, very little force being used. Two days later the patient became drowsy, and died the next day. *Post mortem* an extensive fat-embolism of the lungs was found. On the ends of the bones forming the joints, which were in a state of advanced osteoporosis, there were recent crushes and depressions. Two analoguous cases have been reported from Halle and Marburg. It follows that this proceeding is not so devoid of danger as is usually supposed. It is suitable only for recent cases where but little force is necessary (these usually yield to extension), and is altogether contra-indicated in chronic cases where one must suspect fatty degeneration of the bones or muscless

Imbrication or Lap-Joint Method; a Plastic Operation for Hernia.

Andrews describes, in the *Chicago Medical Recorder*, August, 1895, what he thinks may justly be entitled "A New Operation for the Radical Cure of Hernia." The earlier operations that were employed failed, the author says, because (1) unless a hernial protrusion be stopped at its point of outlet, namely, the internal ring – no amount of closure below will surely prevent its recurrence. But (2) if it be effectually blocked by the repair of this weak point, no attention need be given to the parts below. Even the extirpation of the sac is not absolutely necessary, excepting that portion lying in the canal. The acceptance of this view would relegate to obscurity all the older literature of the subject up to the time of Basini, including the work of Wood, Heaton, McDowell, Bell, Barker, Nussbaum, Czerny, Sewell, and others. The author states that an extended experience leads him to assert emphatically that the sealed aseptic wound will remain aseptic in this locality and that no other will. Drainage is therefore to be avoided.

An incision is made parallel to Poupart's ligament about three centimetres above it, and carried from near pubis to a point a little above the in-

ternal ring. The superficial epigastric artery is always cut and tied. All steps of this operation must be clean and bloodless. Failure to arrest the hemorrhage during its progress will interfere with the subsequent steps. Directly beneath the skin incision, after complete hæmostasis, another of equal extent is made parallel with the coarse fibres of the external oblique, which are always tendinous here. The lower termination of the incision is near the external ring which the author finds need not be divided in all cases. A scrotal sac can always be drawn up without injuring the external ring, and if the testicle is found to be adherent, it may be returned to its proper position by the same route through which it came out. If the scrotal part of the hernial sac does not readily come up through the ring, it may be cut off at its neck and only the portion in the canal be removed. O'Hara, of Melbourne, has shown that there is no objection to leaving the scrotal sac. As a rule, no difficulty is experienced in stripping out the sac, and as a rule, it is better to remove it, except in cases of congenital hernia. After being cut off, it may be cross sutured at the base and returned to the abdominal cavity without further attention.

The canal being cleared of all structures but the spermatic cord, the latter is lifted gently from its bed and held by retractors during the real preparative work. The posterior wall of the canal, up to and including the internal ring, is narrowed by suturing the conjoined tendon and the transversalis fascia firmly to Poupart's ligament from below upward with a kangaroo tendon suture. The imbrication, which is the special feature of this operation, consists in the incorporation of a strong layer of external oblique aponeurosis into the posterior wall of the canal along with as much conjoined tendon and transversalis fascia as can be found, and the preservation of another flap of the same strong fascia to form the anterior wall. The purpose is to lap joints in uniting the several layers of the wound. The author claims the following advantages for this method :

1. A large strong flap of any needed size to fill internal ring.
2. Triplicate layers of aponeurosis.
3. Interlocking layers giving broad surfaces of union.
4. Shortening of anterior as well as posterior wall of the canal, making them mutually supporting and relieving tension on deep suture.
5. Cord amply protected.—*Therapeutic Gazette*, Oct. 15, 1895.

OBSTETRICS.

Fatal Jaundice in Pregnancy.

Demelin (*Reportoire Univ. d'Obstét. et de Gynéc.*, September 25th, 1895), publishes three cases of marked jaundice during pregnancy, two ending fatally. In the first case jaundice appeared at the fifth month, the temperature was subnormal, no external hæmorrhages were seen, and there was no albuminuria. At the end of ten days nervous symptoms set in. Abortion was induced, but the patient died. In the second case icterus continued for several months, and repeated multiple hæmorrhages occured. No albumen was found in the urine. Nerve symptons set in, and death followed spontaneous delivery at the eighth month. The case which recovered was remarkable on account of the presence of albumen and also blood in the urine, a symptom not observed in the fatal cases. There was at first nervous disturbance, indicating the onset of eclampsia, as well as hæmorrhages. The jaundice lasted but a short time, and both mother and child recovered. No fits actually occurred, and all nerve symptons were absent when the jaundice began to clear up. Demelin holds that the uterus should be emptied of its contents as quickly as possible before neuroses sets in.—*Brit. Med.*

Radical Hysterectomy for Cancer.

Clark (*Bulletin of the Johns Hopkins Hospital*, July to August, 1895) believes that this operation has proved unsatisfactory because the broad ligaments are cut too close to the uterus, and the vaginal tissue adjacent to the cervix is not freely removed. The risk of injury to the ureters has been neutralized by Kelly's practice. He introduces bougies into the ureters in all operations where those ducts may be involved. The urethra is first anæsthetised with cocaine, and a ureteral bougie is passed with the aid of a urethral speculum (about No. 8). Clark insists on another precaution. The ureter being made secure during the operation by the presence of a bougie in its canal, the layers of the broad ligament are opened up, and the uterine artery being found, it is dissected out up to its origin and tied. The course of the operation is as follows: (1) catheters are passed into ureters; (2) abdominal incision; (3) upper part of broad ligament is tied off so as to secure the ovarian artery; the vesico-uterine peritoneum is divided horizontally, and the bladder pushed down. Then the layers of the broad ligament are spread apart so as to expose the uterine arteries; (4) the uterine artery is dissected out and tied; (5) the ureter is dissected free in the base of the broad ligament; (6) the remainder of the broad ligament is tied close to the iliac vessels and cut away from its pelvic attachment; (7) the dissection is carried well down below the cancerous area, even though the cervix alone seems to be involved; (8) the same manœuvres, 3 to 7, must be carried ont on the opposite side; (9) the vagina is perforated with sharp pointed scissors; firm traction is made on the uterus with a small volsella so as to pull up the vagina and make tense its walls; then the tissues are tied in small segments, about a third of an inch, each segment being cut as it is tied. (10) Iodoform gauze is inserted from above into the raw space left by the hysterectomy; the vesical and rectal peritoneum are united over the gauze by means of a continual fine silk suture. (11) The pelvic cavity is irrigated and the abdomen closed without drainage. This operation has twice been performed. both patients recovering; but the first is as recent as April 26th this year, and, unfortunately, a cancerous deposit developed two months later in the rectum. The proceedings allows, it is evident, of very free excision of the structures surrounding the uterus.—*Brit. Med.*

Perforation of Uterus by a Degenerate Fibroid.

Richelot and Touche (*Bulletins et Mémoires de la Soc. Obstét. et Gynéc de Paris*, No. 8, 1895) report this case. A woman, aged 43, not pregnant for seven years, had for the first time profuse menorrhagia in May, 1895. Large clots passed. In June the symptoms recurred. Early in July a tumor was discovered by a physician. After rest the free metrorrhagia ceased. Temperature was normal. A fluctuating mass filled the flanks and hypogastrium, reaching as high as the umbilicus. The uterus, on vaginal examination, seemed normal below, but was clearly connected with the tumor. The fornices were free. On opening the abdominal cavity, a soft reddish mass was found firmly adherent to the parietes as low down as the true pelvic cavity. The fundus uteri was exposed, and a perforation about 2 inches in diameter discovered. The spongy mass protruded through the perforation, the edges of which constricted the mass. Internally another part of the mass was found lining the true uterine cavity. All the morbid growth was removed, the uterine cavity cleaned, and the edges of the perforation sutured to the abdominal wall. The cavity formed by the extraction of the uterine portion of the growth was drained. The growth was a degenerate uterine myoma. The cavity was dressed with iodoform.—*Brit. Med.*

NEWS AND MISCELLANY.

A Surprise in Seidlitz.

On the first consignment of Seidlitz powders in the capital of Delhi the monarch became deeply interested in the accounts of the refreshing draught. A box was brought to the king in full court, and the interpreter explained to his majesty how it should be used. Into a goblet he put the twelve blue papers, and having added water the king drank it off. This was the alkali, and the royal countenance expressed no signs of satisfaction. It was then explained that in the combination of the two powders lay the luxury, and the twelve white powders were quickly dissolved and eagerly swallowed by his majesty. With a wild shriek that will be remembered while Delhi is numbered among the kingdoms the monarch rose, staggered, exploded, and in his full agonies screamed, "Hold me down!" then, rushing from the throne, fell prostrate on the floor. There he lay during the long-continued effervescence of the compound, spirting like ten thousand pennyworth of imperial pop, and believing himself in the agonies of death.—*London Tid-Bits.*

The Code.

In his address to the graduating class of the University of Pennsylvania, Prof. H. C. Wood lays down the code of medical ethics as follows:

1. To consider the doctor as a member of your own family, having an inherent right to your medical services; but to remember yourself not to abuse this right.

2. To consider any discovery or any invention you may make as belonging not to yourselves but to the general profession.

3. Never in any way to laud your own medical skill or to attempt to supplant in public or private estimation one of the medical household.

4. To join yourself as soon as may be to the incorporated companies of your fellows for scientific and social intercourse, and for the cultivation of that professional conscience which often binds men more closely than their personal sense of right and wrong.

5. Through good and ill report to stand by members of your own profession, unless they be guilty of moral evil.—*Boston Med. and Surg. Journal.*

Medical Students at Philadelphia.

The following estimate has been made of the number of medical students attending the several schools of Philadelphia, together with the number in attendance during the last session:

	'95-96.	'94-95.
University of Pennsylvania . . .	900	865
Jefferson Medical College . . .	725	700
Medico-Chirurgical College . . .	350	225
Hahnemann Medical College . .	285	260
Women's Medical College . . .	200	175
Philadelphia Polyclinic	150	120
	2610	2345

An unfortunate error in a New Haven (Ct.) drug store—the sale of aconite by mistake for cholera mixture,—with fatal consequences, and the coroner's inability to determine which of two clerks is accountable, promises to bring about an agitation for the amendment of the present pharmacy law in that State, so that the identity of the drug clerk selling medicine cannot be concealed without a violation of the law. It is suggested that each clerk who sells a parcel of medicine shall be required to place thereon a new label, and that this label, besides stating the name of the contents of the bottle or box, shall also bear the name or initials of the clerk making the sale. It is proposed also to enact laws with the intention of reducing mistakes in compounding to a minimum by requiring that each mixture compounded shall be checked or certified to by a second person, and bear the signature or initials of both. The checking of prescriptions prevails in every well regulated pharmacy, and no objection can be urged against rendering it mandatory by law.—*Bulletin Pharmacy.*

Holiday Excursion Rates on the B. & O.

In pursuance of its usual policy, the Baltimore & Ohio Railroad Co. will sell Excursion tickets between all stations on its lines east of the Ohio River for all trains December 21, 22, 23, 24, 25, 31 and January 1st, valid for return journey until January 7th, inclusive, at reduced rates

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ORIGINAL ARTICLES.

SOME USES OF LOBELIA INFLATA.

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Perhaps little that is absolutely new can be said about Lobelia, but "I would stir up your pure minds by way of remembrance."

Within the month past, four men have come to me with commencing whitlow. They had been told, each by a different doctor, that nothing but free incision could prevent the loss of one or more of the phalanges, with more or less permanent deformity. All were treated alike, and all recovered without incision except a painless cut through the skin to let out a little pus that had collected just beneath the surface. The finger was surrounded by a moderately thick layer of cotton, around which was wrapped a couple of thicknesses of rubber tissue, and all confined by a light roller, the finger held upright and the cotton saturated with tincture of Lobelia, a supply of which was given the patient with directions to keep the cotton constantly wet.

Now I have no idea that there was anything in this treatment new to any one of those four doctors. But why did they not use it? Is it too simple? Or is it too expeditious? Or is it unscientific because unauthorized by some ponderous twenty-volume surgeon on the other side of the Atlantic?

My grandfather migrated to Ohio during the present century, and it was a tradition with us as youngsters that he learned the value of the local uses of Lobelia from the Indians. The story was, that when an Indian received a punctured wound from knife, arrow or bullet, if it was not immediately fatal he bound on it a poultice of powdered lobelia leaves, and when that was not available he filled the wound with *Scultahwahbah*, and fully expected to recover. I have an idea that *Scultahwahbah* was the Indian's stagger toward the old Irish Usquebough, which had somehow entered into their tribal vocabulary. Our family tincture was made by filling a bottle with the leaves, and pouring in all the whiskey it would hold. Punctured wounds, and wounds made by rusty iron, copper and brass were dressed with a compress made of finely scraped linen lint (cotton would not do at all) saturated with this tincture, and

we religiously believed that lock-jaw was locked out. A great many years ago it was recommended in the "*Charleston Medical Journal and Review*," for use in tetanus, but it is a long time since I have seen a report of its having been used. No case of general tetanus has occurred in my practice, but several have had the classical symptoms of the first stage—stiffness of the neck, sore throat, inability to masticate food, difficulty in swallowing, and interference with speech—sufficiently severe to give both patient and doctor no little anxiety. In all these cases, no matter what the cause or condition of the wound, it, and what was deemed a sufficient area on the proximal side, was dressed with tincture of Lobelia constantly applied, and in every case in less than forty-eight hours all threatenings of tetanus had disappeared.

Strict justice to Lobelia requires me to add that at the same time Gelsemium was administered in full doses, and the patient was not left until there was dilated pupil and slight oculomotor paralysis, as shown by irregularly varying diplopia and this action of Gelsemium was maintained until all symptoms of tetanus were gone. It is true the power of this treatment would have been more clearly demonstrated had expectant treatment been pursued until the general body muscles were involved, but I preferred that some other doctor and his patient should do the expecting.

It is my firm belief that, if in all cases where amputation has been done for the relief of tetanus the stump had been treated by the constant application of Lobelia, the results would have been much more satisfactory than they have been. Whether its local use would be beneficial in those cases where tetanus comes on after the wound has healed, can only be told by trying it. A remedy that will prevent deep suppuration in a felon after the periosteum has become implicated has no mean penetrating power, and in a disease so generally fatal as tetanus it is worth trying.

When the deep palmar fascia has been bruised and threatens to suppurate, it will do right royal service if used in the same way as for a felon. The only preventive treatment that can in any near degree compete with it, I learned long ago from a master painter in a large carriage manufactory. His plan was to apply a bandage of many thicknesses as tightly as it was safe to do, and then have the patient hold the hand for some time in a case of copal varnish. He thus cured many cases where doctors, and even the professor of surgery in a leading medical college declared suppuration to be inevitable.

On account of its sedative and paralyzant action on the motor nerves, it is the most satisfactory dressing I have found for use in the crushes caused by machinery, as well as those happening to miners and quarrymen. It is almost equal to carbolic acid for dulling sensation, and has none of its dangers; and it prevents twitchings, which are sometimes so annoying, best of any local application.

It is, perhaps, not the best dressing to use after amputation if the surgeon can have constant supervision over the patient. But to the busy doctor who can see his patient but once or twice a week, and in the meantime must leave him amidst filthy surroundings and in the care of ignorant and careless attendants, it is an unmixed good. He can lie down serenely and sweetly sleep, knowing that no pus producing "cuss" or coccus will invade the dressing until repair is complete.

The results from its internal use have not been so very brilliant as to make me very partial toward it except for one condition, and that is the one causing "throat cough," for which the following prescription "is the sovereignest thing in the world."

℞	Tinct. Lobelia Leaves	℥ ss
	Bloodroot	℥ j
	Oil of Spearmint	♏ ss
	Simple syrup to make	4 ℥

M. Sig. Take half-teaspoonful, undiluted, every two or three hours, and take neither food nor drink for fifteen minutes afterward.

The local as well as the general action of the bloodroot is peculiarly adapted to those half-hysterical, half-chlorotic females who are the principal possessors of that annoying thing, "throat cough."

Quite often the administration for a few days of 1-5 grain of calomel, one-half hour before each meal, will render its remedial action more prompt and satisfactory.

THE SYMPTOMS AND TREATMENT OF VARIOUS TYPES OF APPENDICITIS.

THOMAS H. MANLEY, M. D., NEW YORK.

[CONCLUDED.]

Surgical Cases of Appendicitis.

The number which comes under this category, in my opinion, is not very large, and should include those in which tentative measures have failed, or threatening symptoms suddenly develop. It will be observed that the position here taken on radical measures leans, strongly, towards conservatism. This is done advisedly; for, while we must admit that to surgery we must turn as our only resource for saving life in all serious cases, yet, that this must be availed of in every case, in my judgment after a fair experience with the malady, is a mistaken conclusion.

In most of our abdominal sections for appendicitis, the large incision and the necessary damage leaves a breach to be filled only by scar tissue which frequently yields to intra-abdominal pressure, and favors ventral hernia. Very true this consideration should carry little or no weight when a life is in imminent danger, nevertheless, to a man who depends on his labor for a living, it becomes a serious matter as, in any event, this type of hernia is quite incoércible to the truss.

On this important question of radical measures, the opinions of surgeons are widely at variance. For example, Mercier, of Montreal, would operate only when by the persistance of a tumor, recurrence, or impending perforation, it was believed imperative. Duret and Montestie, of Lille, Halbert, of Waco, Texas, Quenu, Bouilly, Reynier and Monard, of France, take a similar position. Jones, of Omaha, Savage, of Pittsburg, the late Dr. Ross, of Toronto, Nelaton, Verneuil, Routier and others, though not so conservative, occupy similar ground. Against these are arrayed those who urge immediate surgery, Cordier, of Kansas City, Halsham, of London, Hoffman, of Philadelphia, Morris, of New York, Murphy, of Chicago, Fairchild, of Iowa, and a host of others.

Fendler is of the opinion that the indications for operation in this malady have been too much enlarged on by Americans. Von Bergmann would advise operation in all cases when pus is present.

The shock of operation is always very great, as we might expect, when a patient is in high fever and the vital powers are greatly depressed. More than one case has been under my observation of even the non-suppurative type quickly ending mortally after operation. In some of these cases, probably, if the system had not been additionally depressed by a fresh lethal agent introduced by full pulmonic anæsthesia and a highly inflamed peritoneum opened, recovery might have ensued. It is my firm conviction that an ill-timed operation for appendicitis, by which it is to be understood one performed unskillfully or in the absenceof perforation or suppuration, may deprive one of his only hope of surviving.

This operation is one of the most difficult and dangerous in surgery, and, should not be recommended unless conditions justifying it are most urgent and distinctly accentuated.

Often the relation of the medical-attendant becomes exceedingly embarrassing. His position is an extremely responsible one, as with him the question of the desirability or the necessity of an operation must rest in most cases. To operate too early is a mistake; to operate too late is certainly fatal. If only we could determine just the right period for interference, then surgical would be the ideal treatment in severe or desper-

ate cases. But we cannot. Hence, under all circumstances, there must be an element of uncertainty and, consequently, fatal issue must frequently follow operations in serious cases.

Technique of Operation.

Evidently, if we have varying types of appendicitis, we must vary our modes of operative procedure.

If we shared in the views of certain operators that, under all circumstances and in every case, we must open the general cavity of the peritoneum, search for and remove the appendix, there would be no room for questioning the extremely serious character of the operation. We would be compelled to open widely through the abdominal walls for full exploratory purposes. It may be well to remember, however, that at times the appendix is not in the peritoneal cavity at all, but lies rolled up under the cæcum and is incorporated in the bed of loose connective tissues on which this rests. It may, too, be well to know beforehand that we sometimes find no appendix, but a remnant only, a thin, round, tendinous band occupying its place.

But most important of all to bear in mind in this class of operations, is that though, generally, the appendix is justly blamed as the source of the trouble, sometimes it certainly is innocent. We seem to have forgotten that there is such a pathologic state as typhlitis, suppurative and perforative. Sometimes, we will find the cæcum opened by an ulcer at the root of the appendix or through some part of its walls. Treves and Lamphear have reported such cases. All will admit that to search for or resect the appendix is the proper course in certain cases. In some, however, certainly this is needless and greatly adds to the gravity of operating.

In one of my cases the seat of perforation was at the root of the appendix in the wall of the cæcum. In another, a negress, the posterior wall of the cæcum was perforated, and the appendix was found entirely free from disease. The late Dr. Rand, of Brooklyn, found a ruptured appendix in a strangulated hernial sac, the case ending fatally.

Gerster, Abbe and Page report serious results after amputating the appendix through the small intestine being obstructed in consequence of becoming adherent to the stump and sinking. Barton, of Philadelphia, urges against the necessity of, *invariably*, either seeking for or removing the appendix.

In the majority of operative cases we have to deal with an extra-peritoneal abscess. Adhesive inflammation has walled off the purulent exudate and fæcal leakage. If we operate at the right time, before the retro-peritoneal or meso-cœliac tissues become the seat of secondary infection, we have accomplished quite enough when we have opened the mass and drained it leaving the appendix to itself unless it rises into the wound and is immediately under the eye. Although this, from a theoretical standpoint, may be regarded an incomplete operation, as the diseased appendix is left behind, never have I known a case so treated to give rise, secondarily, to disturbances such as demanded an ulterior operation. The probabilities are that the vitality of the organ has been destroyed and it undergoes atrophic change.

For those perityphlitic phlegmons we make an incision parallel with Ponpart's ligament, about an inch and a half anterior to, and parallel with the anterior superior spine of the ilium. A short, deep incision over this area will bring us down to the fascia transversalis. As we reach this, we must pause, and endeavor by palpation, to determine the state of the tissues underneath. Now, we carefully expose the peritoneum, and divide it over the point of fluctuation. Sometimes all the tissues, from the peritoneum outward, are so infiltrated and bound together as to render isolation of the structures quite impossible on dissection. In operations for this class, there are two things which, among others, we should be particular to avoid: viz., to not wound the cæcum, and to not penetrate the peritoneal cavity. We may in this type employ cocaine with singular satisfaction, and thus obviate the post operative vomiting of ether anæsthesia.

This is the type which yields the best results after operation, and which, when neglected, leads to the most disastrous consequences. Life is imperilled by delay, through consecutive change, a widespread diffusion of pus, resorption

and auto-toxæmia. Nature makes desperate efforts to discharge the lethal debris forced by the disintegration of tissue. At one time establishing a drain by the most tortuous route, and again opening into the alimentary canal to discharge the befouled accumulation through the rectum. Cases have come under my notice in which the pus took an upward course breaking through and draining by a fistulous gap in the thin scar-tissue of the umbilicus. Sometimes pus penetrates and enters the fundus of the bladder, to be thrown off by the urine; again it passes down under the pelvic fascia, descending within the sheath of the lavator-ani, to leak through the verge of the anus or the ischio-rectal fossa much the same as a local abscess. Other cases we will see, in which pus extravasates the overlying muscular planes; arrested at the median-line by the fusion of the aponeuroses, it gravitates backwards and appears on the opposite side. Again, and more commonly, pus makes its way into the retro-peritoneal tissues, displacing the kidney, even penetrating the root of the diaphragm and discharging into the pleural-cavity. There are neglected cases where, at the proper stage, surgery alone cuts short all danger of infection and insures rapid recovery.

Before proceeding to the management of the next and gravest phase, appendicitis with intra-peritoneal perforation, a few comments will be submitted on the operation performed for the *chronic relapsing* type.

In this class attacks recur at intervals, with varying degrees of intensity. Catarrhal inflammation destroys the adenoid lining of the appendix, entirely or in part; or, ulceration may anywhere open its lumen.

It is in this chronic or relapsing type, with perforation that we will most commonly find minute scybalæ of fæces or foreign bodies, within or outside the perforated organ. Various operators report the most remarkable finds. For example, Marker has found a black pin; Ashton the fin of a fish; Ransahoff a 32-calibre cartridge; and Wyman, a large white bean. Jonas cites a most remarkable case of this character. A woman, 49 years old, came under his care presenting symptoms simulating appendicitis, with a tumor as big as a hen's egg, over McBurney's point. The tumor was hard and painful. She had severe, though not constant pain, with chills, and a temperature of 102°. No vomiting. On operation, the bowels were found matted together, by extensive adhesions, but there was no pus. The appendix was normal. The tumor simulated a neoplasm, and it was found impossible to remove it. The abdomen was closed and a fatal prognosis given. But, thirty days later, the patient passed by the rectum an enterolith, the size of a lemon and as hard as a stone *

The period recommended for operative interference in this type, is during the interval of attacks, while the parts are quiescent, and the individual is in good form to sustain the operation. In an operation undertaken for this type, the general aim of the operator is to find the appendix, after being first assured that the cæcum is not compromised.

If by any means at our command, we could fix the exact site of the appendix before operation, it would require but a short incision, and excision would be rendered vastly less difficult. But, as previously stated, the fact is the appendix, if present in the peritoneal cavity, may, after pathological changes, occupy the most devious positions. Very often, it eludes detection by digital exploration, even though the finger has repeatedly swept over its bare surface. Plastic inflammation with fibrous changes may have incorporated it so intimately with the surrounding structures and even with the sheaths of the great blood trunks, that nothing less than the most delicate, cautious and protracted dissection will expose it. It's tip has been found adherent to the gall-bladder, to the kidney and to the stomach, and every operator knows how commonly the organ is dragged far down and firmly locked with the deep pelvic structures.

With a knowledge of these facts, it is obvious that nothing less than a free, large incision should be made through the linea semi-lunaris; as this will bring us down inside the cavity of the peritoneum, and into such a situation

* Recovery then took place.—(*Annual of Universal Medical Sciences*, Sarjou's Issues of 1894-1895.) From this source, most of the accessory literature in above article is taken.

as will permit of the fullest exploration. The large incision will enable us to proceed with precision and bring the organs under the eye; for in ferreting out the appendix, nothing but direct vision will enable us to recognize it, in a considerable number of cases.

The caput-coli is a guide of great value. Generally, when we have this accurately located, by following down the course of its anterior, longitudinal fibres we come on the base of the appendix. This is sometimes impracticable, and always exceedingly difficult of execution. Our patient may have a very thick layer of abdominal fat. We will have in nearly all cases a considerable infiltration of the abdominal wall. There is, commonly, flatus in the small intestine, which forces it into the incision, when our operative field is at once obscured, or quite out of reach. Tedious and continuous effort, however, is generally rewarded by discovering the appendix; though it is well to know that, sometimes, the most experienced surgeons are foiled, and forced to give up the search.

But, assuming that the appendix is discovered and brought into the incision, how shall we amputate it without leaving a tendency to fistula?

In the healthy, vigorous subject the peritoneal surfaces unite with surprising rapidity after the serosæ are pressed together and retained by the Lambert stitch; but the most of these subjects coming under operation for chronic appendicitis, are in a depressed state of health, in consequence of which the plasticity of the tissues is greatly reduced and thus, in spite of all precautions, solid union of the stump may fail.

In order to obviate the tendency to fistula after excision of the appendix, it has been my custom to carry the closed end of the stump and suture it to the lower-most edge of the incision, or on to the parietal peritoneum; and if possible to drag the free end into the gap, closing it in between the muscle fibres, This step makes its adhesion entirely extra-peritoneal and, should there be a tendency to leakage, as the wound unites the gaping orifices of the stump is caught up and solidly closed in the process of union of the incision.

In this type, when no pus is encountered and every possible source of contamination has been avoided, we should close the abdominal wound hermetically without drainage. This will reduce the period of convalescence and vastly diminish the chances of subsequent ventral hernia.

Perforative Appendicitis, with purulent and feculent infection of the cavity of the peritoneum depends on primary and immediate connection between the lumen of the appendix and the serous space, or the consecutive bursting of an encysted perityphlitic abscess, is the gravest form of appendicitis, or perityphlitis, and all accord that without the aid of surgery death is inevitable. It may, moreover, be added that under even the most favorable auspices the operative mortality is large.

The conditions which confront us and the signs of profound constitutional disturbance, warn us that death is not far off. Often, the question which is forced on us, is not how shall we operate, but rather, shall we hazard any radical measure.

Our patient's general condition is such as to contra-indicate any protracted operation, which the one to be undertaken always is; therefore, our only justification for it is that it is the only possible alternative however doubtful may be its results.

Formidable difficulties lie in the way of the operator. We can all appreciate the importance, in this desperate class, of rapid operating, or reducing the anæsthesia, and of completing our manipulations within the peritoneum within the briefest period of time.

Pathologic changes have produced extensive derangement of the normal anatomical relations and an operator must now depend on his experience and practical acquaintance with this peculiar and unusual type, rather than on his knowl of the healthy structures.

Under all circumstances we should insist that the operation be thorough and complete, unless serious symptoms suddenly develop.

A large incision will hardly do here, else we will almost inevitably invite an extension of intestine to embarrass us. As in operating for chronic appendicitis, our incision should be to the outer side of the linea semi-lunaris. We are com-

pelled to depend, in a large measure, on the sense of touch to detect the appendix in the tympanitic abdomen. With the finger passed through the incision, we grope for the appendix and for pus accumulations. If the perforated or gangrenous appendix comes up into the wound, we may quickly deal with it. But, in not a few instances such profound collapse sets in after the peritoneum is opened that we may not tarry to find the appendix, but must hurriedly bring the operation to a close however incomplete it may be.

It may, perhaps, seem like supererogation to inquire if at this stage we should flush the peritoneal cavity with antiseptics or sterilized fluids; or whether we should depend entirely on drainage?

Antiseptics have long since been cast aside in peritoneal surgery. It is well to know that warm water will not wash away pus from serous surfaces. My own experience has rather inclined me to discard flushing in all these cases, unless the quantity of foul material is excessive. Having cleared the peritoneal cavity of all foreign material and left an ample vent for the residue, we have done quite enough; besides, we have greatly reduced the time, so dangerous an element in these cases.

Hospital or Home Treatment.

It does not appear that anyone has yet attempted to determine the relative frequency of this disease in the various classes of society. It seems to prevail, however, with equal frequency among all, without regard to social caste. Evidently, then, we must be prepared to treat it among the middle and lower classes more frequently then among the wealthy, for, in numbers, they predominate.

Can operative cases be managed at home equally as successfully as in a hospital?

It is my conviction that they can be, and even more so. This is no novel or theoretical notion of mine, for I have formally taken this ground in the Academy of Medicine, and have statistics to support the statement.

For the mechanical part of the treatment, with a large staff of assistants and nurses, besides an abundance of instruments, it at first seems that a hospital equipment gives better guarantee of results than could be provided at one's own home, but like a great many theories, strong from the speculative side, this one is delusive in practice.

To begin with, to move a patient in an advanced stage of appendicitis out of his bed exposes him to draughts, and the jolting consequent to transport to hospital adds fresh danger and diminishes the prospects of recovery. No hospital constructed can, or ever will, provide the sympathetic, unremitting attention of a well-kept home. Too many assistants only stand in one another's way. Of instruments it may be said the fewer the better, what only is needed is skill and discretion in the use of them.

Of late years the too general practice of sending these cases to hospitals has operated to the disadvantage of the patient and has tended practically to remove from one's *clientele* many cases of unusual interest and profit. Surgeons give their services to our hospitals without compensation, and why should they not also, among the poor and worthy outside, on the representation of the family physician, occasionally gratuitiously perform an operation, or so scale their fees that those in moderate circumstances may employ them to operate the further conduct of the case being in charge of the family physician?

The loud and general complaint, now among practitioners is over an excess of hospitals and their abuses, for which they themselves are largely responsible, and which if remedied, the work of reform must commence with themselves.

To Sterilize Milk.

To sterilize milk, Malcolm Morris directs thus: Place the milk in a clean bottle and plug the mouth with clean cotton wool. Then stand the bottle in a suitable metal vessel so that it is raised about half an inch from the bottom, pour cold water into the outer vessel until it attains the level of the milk, and heat slowly on a stove until the temperature of the water reaches boiling point. Now take the vessel from the fire and cover over loosely with a piece of woolen cloth for half an hour, at the expiration of which remove the bottle and store it in a cool place.—*Pub. Opinion.*

THE NUTRIENT VALUE OF SOMATOSE.

SAMUEL WOLFE, A. M., M. D.,* PHILA.

In the various conditions attendcd with malnutrition,it frequently becomes necessary to administer in addition to the ordinary food a certain amount of some concentrated albuminous nutrient with the object of supplying to the patient as much tissue-making material as possible. In his selection of such a supplementary food the physician is confronted with a large number of preparations, and it is therefore of interest to briefly review the various requisites that should belong to an albuminous food-product. In the first place its albuminous constituents should be present in a concentrated form with as little inért material as possible. Secondly, they should exist in a form to be readily digested and assimilated without giving rise to gastric or intestinal irritation. Thirdly, the preparation must be palatable and well relished, and not liable to excite repugnance when given for a long period. These are the three chief essentials of an albuminous product, but they are seldom realized in the same preparation. Many of the products in the market contain only a small percentage of available albumins and a large quantity of useless ballast which tends to derange the gastro-intestinal tract. Others are characterized by a disagreeable and repellant taste or odor which causes them to be rejected by many patients, especially sensitive women and children.

In the present communication I desire to relate my experience with Somatose, a new albuminous food-product which possesses many valuable features to which I will briefly refer. It consists almost exclusively of albumoses, which, according to many physiologists, constitute the most available form of administering the albumins, containing but a minimum of peptones, which in a pure state are now generally considered as of limited nutritive value and as productive of gastric and intestinal irritation. On the other hand, it contains the so-called nutrient salts of meat. Somatose appears in the form of a powder, which is freely soluble in ordinary fluids, and being practically tasteless and odorless can be added to milk, beef broths, coffee, tea, etc., without imparting the least flavor. This is certainly a great advantage in a food preparation which has to be administered for some time.

The field of utility of Somatose is represented by all diseases attended with failure of nutrition and exhaustion of the vital powers, of both acute and chronic character. Owing to its freedom from irritating effects upon the stomach and intestinal canal, it has been found well adapted for persons suffering from acute and chronic gastritis, ulcer and cancer, cholera infantum, etc. In acute febrile diseases, as pneumonia and typhoid fever, some very favorable reports have been published on Somatose, showing that it is an acceptable and assimilable nutrient even in conditions of great prostration of the vital powers. Chronic conditions attended with emaciation and exhaustion, as pulmonary tuberculosis, are greatly improved by the addition of Somatose to the diet, while in anæmia, chlorosis, and convalescence from acute disease it is very serviceable. I desire also to call especial attention to the fact that this preparation has a marked influence in stimulatiug the appetite and digestion, enabling the patient to dispose of a larger amount of other foods than would otherwise be the case, and this is a valuable feature not possessed by other food-products.

After a fairly liberal use of Somatose for some months, while I have not had any striking results, I have become convinced that as a food product it has a decided virtue. It is sufficiently acceptable to the stomach to admit of administration in almost any case. Indeed to any one with an appetite for food, it is relished equally to the delicacies of the table.

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In none of my cases was it ever refused on account of objectionable taste, nor tired of from continued use.

I gave it to three nursing mothers, where the milk was failing in the early period of lactation, with the effect of fully restoring the secretion with gratifying promptness. In the one case, no other symptom was present, and the failure threatened in the third week after the accouchement. In the second there was decided anæmia, besides quite extensive organic heart disease, and the failure occurred during the administration of ferruginous and other tonics, two months after the birth of the eighth child. In the remaining case the symptoms resulted in the third week, after a most obstinate intermittent fever had yielded to repeated large doses of quinine, while the patient was taking iron and strychnia.

In two phthisical cases it was given, the one being quite advanced and beyond hope of any material benefit, and in this case soon abandoned because the results from any food product were perfectly unpromising. In the other, it was used for five or six weeks, during which time the patient held her own well, without, however, gaining in any special way more remarkably than on hyper-alimentation with the Somatose left out.

A little girl who had run down a great deal while passing through the stages of a subacute abscess involving the glands of the neck, took the food well and improved notably in condition under it.

A young woman, who had recovered with the usual disfigurement from extensive syphlitic ulceration of the nasal bones and tissues and the adjacent parts of the face, and who still suffered occasional storms of neuralgia and nocturnal headache, did well while taking it with appropriate drugs, while the latter alone with good diet had given more indifferent results.

A young married woman was wasting in flesh, her menses had disappeared and her strength was much depressed. Somatose with a tonic was prescribed, and although subsequent observations showed that she was in the early months of her third pregnancy, yet the immediate improvement on the use of the food may reasonably be ascribed at least in part to its effect.

Another young married woman, who had made an excellent recovery from her first confinement, five months before, and was not nursing her child, began to lose flesh and strength, and also suffered from a slight gastro-intestinal disturbance. A little simple medication, and the use of Somatose rapidly restored her.

From these and other experiences in the same direction with the preparation, the writer would regard Somatose as a valuable agent in all cases where nutritive material needs to be introduced into the system in a form at once concentrated, easily and rapidly assimilated and unirritatiug. The improvement in the appetite which was noticeable in some of the cases, seems to be further support to the view that this combination of properties is present in a high degree in this product of the skilled chemist.

A Young Mother.

I wish to report the case of the youngest mother in Virginia. Annie H—— was born in Bland county July 15, 1885, and September 10, 1895, she was delivered of a well-formed child weighing five pounds. She was only ten years and nearly two months old. The girl has no developments of a woman, although she has menstruated regularly since she was five years old.

The labor was a short and uneventful one, and two hours afterward the child-mother wanted to get up and dress, and would have done so had she been permitted.

There were no developments of the mammæ or secretion of milk. The baby was nourished through its short existence (as it only lived a week) by its grandmother, who has a child only a few months old. The parents of this child, Mr. and Mrs. J. P. H.——, are prosperous, intelligent and worthy people, and there is no doubt of their child's age.

The child is now well and plays about with the other children as if nothing unusual had happened.—*C. W. Cleaves, M. D., Wytheville, Va., in Med. Rec.*

COMMUNICATIONS.

CIRCUMSTANCES UNDER WHICH CHLOROFORM IS PREFERABLE TO ETHER AS AN ANESTHETIC.*

GEORGE W. GAY, A. M., M. D., BOSTON.

It may seem rank heresy for one who was educated at the Harvard Medical School and who has practised surgery under its shadow for a quarter of a century to advocate the use of chloroform as an anesthetic under any circumstances whatever. Those who have been educated, and have practised surgery in other parts of our country, or in foreign lands, can hardly realize the antipathy which formerly prevailed against chloroform throughout New England, and which exists to a very great degree at the present day. Aside from those gentlemen, who saw service in the late war, where for various and obvious reasons chloroform was the almost universal anesthetic, very few are to be found in that section who use chloroform in preferenee to ether for ordinary surgical purposes. Should a surgeon in our vicinity meet with a fatal accident under the former agent, he would be placed in an embarrassing position in the eyes of both the profession and the public, and, under ordinary circumstances, would get little sympathy from either. Very likely he would be subjected to some such catechism as the following:

"Doctor, your patient died under chloroform?"

"Yes sir."

"Were you not aware that choloform is more dangerous than ether?"

"Yes sir."

"Then why did you use it?"

In an ether community it would not be sufficient to say, in answer to this question, that chloroform is pleasanter or cheaper, or acts more quickly or in smaller quantity, or that it is used in England. All these points would avail nothing in comparison with the one question of safety. That is the keystone to the arch, and all other considerations are of secondary importance.

In the Northern, Middle, and Western States of this country ether is the principal agent used in ordinary surgical practice, while in the Southern States chloroform has the preference.† In foreign countries the latter agent is probably the favorite anesthetic in a majority of cases. The fact that practical surgical anesthesia by means of sulphuric ether had its birth and origin in Boston has nothing whatever to do with its popularity in this country. Our community is a conservative one, and in this matter the foundation of its faith and preferences is safety.

It is impossible, nor is it necessary to state in exact terms the relative safety of chloroform and ether. That there is a decided difference between the two drugs in this respect cannot be doubted by any candid observer and reader of the literature of the subject. It is true that many practitioners of large experience have never met with an accident in the use of chloroform. It is also true that over four hundred deaths from this agent have been placed upon record, and no one can form any correct idea of the number of unrecorded fatalities. In 1889, Dr. Laurence Turnbull‡ placed the latter at one hundred cases, which cannot be considered an extravagant estimate. No such record is claimed against ether by even its strongest opponents. The fatalities from ether at that time on record amounted to about sixty. Cheever§ says that the largest and most reliable statistics indicate that ether is about ten times as safe as chloroform.

Much has been said and written as to the exact method in which death takes

*Read at the meeting of the American Surgical Association, in New York, May 30, 1895.

†Wood's Reference Handbook of Medical Science.

‡Artificial Anesthesia, 1889.

§Lectures on Surgery, p. 27.

place under the influence of these two drugs. The common opinion is, that ether kills by asphyxia, and chloroform by cardiac paralysis. The Hyderabad Commissions, of which Dr. T. Lauder Brunton, and Surgeon-Major Lawrie were members, declared in their report, that chloroform "never causes sudden death from stoppage of the heart." Drs. Wood and Hare claim that chloroform is a cardiac paralyzant. In some cases the influence is most felt upon the respiratory centres, and in others upon the cardiac. So far as practical medicine is concerned it makes little difference, whether the heart stops just before or just after the respiration."‖

The accumulated testimony of the past fifty years tends to prove conclusively that ether kills slowly, chloroform quickly; that ether kills by asphyxia, chloroform by cardiac paralysis; that ether gives plenty of warning, chloroform often none whatever; that ether is safer in healthy and strong people than in the weak and prostrated; but that chloroform is nearly as fatal in the vigorous as in the debilitated. Ether does not demand any special skill in its administration; chloroform does. Proper treatment easily and effectually overcomes the unfavorable symptoms from ether; treatment oftentimes does no good whatever in accidents from chloroform. In short, ether is the safest general anesthetic known; chloroform is not.

In view of these facts the burden of proof in justification of the use of chloroform rests with the operator. Although plenty of authority can be found in favor of the stronger agent yet the fatalities take place just the same as ever, in spite of all the precautions which it is possible to take. Ringer says there are no conditions of age or health which forbid the use of chloroform as an anesthetic provided due care be observed in its administration.*† The Hyderabad Commissions claim the same immunity from danger. In the writer's opinion, such an assertion cannot be truthfully made of any known anesthetic, not even of sulphuric ether itself, which is the safest of them all.

Those who claim that the fatal results of chloroform are due to want of care and skill in its administration are casting reflections upon such men as Sir James Y. Simpson, the father of chloroform anesthetic, Erichsen, Billroth, Volkmann, Syme, Hunter McGuire, James Wood, Willard Parker, F. H. Hamilton, Alden March, Moses Gunn, W. W. Dawson, and many other skillful and reliable members of our profession.*‡ An agent, which is not safe in the hands of such men, is certainly not the most suitable one to be put into the hands of the rank and file of medical practitioners.

A strong, healthy young man desires to have a finger amputated or a felon opened. He breathes a few whiffs of chloroform, and without any warning stops breathing, and is dead. No operation has been done which could have produced any shock. Such accidents have also occurred in the dentist's chair many times. An autopsy is made, and perhaps some slight change in color is found in the pericardium, or capsule of one kidney, or some other variation which, under ordinary circumstances, would not have been noticed. That is all that can be found to account for the preventable catastrophe. Do such things occur under ether? If so, they are not put upon record, nor have they been observed in the larger hospitals in this part of the country. It is not quite safe to give ether under all circumstances; but the unfavorable conditions are apparent to any one familiar with anesthetics, and can be provided for or guarded against. There is nothing obscure, or irregular, or fulminating in its action, as in its more powerful rival.

Daily experience with a drug, under all sorts and conditions of circumstances in the care of the sick and wounded for over a quarter of a century without meeting with any serious mishap, gives one more confidence in that agent than all the reports of learned societies or so-called national commissions. There are not a few in our midst who have had just this experience, and they require neither argument nor statistics to convince them beyond the shadow of a doubt of the superiority of ether over chloroform for general anesthetic purposes. And yet, for various reasons the

‖Medical News, February 22, 1890.
*†Willard and Adler on Anesthetics.
*‡Therapeutic Gazette, August and September, 1890. Dr. G. Archie Stockwell, Detriot, Mich.

latter agent will doubtless continue to be used by a large number of practitioners in different parts of the world for all time. It is pleasanter to inhale, quicker in its action, more lasting in the effects less apt to be followed by nausea and vomiting, cheaper, less bulky, and not inflammable. Moreover, the accidents from chloroform are not sufficiently common to create that fear and distrust in the mind of the profession and of the public which demands its abandonment in surgical practice. Personal preference and prejudice, freedom from accidents in the immediate vicinity, and perhaps national pride, are factors which may determine not a few in their choice of an anesthetic.

The truth of this whole matter seems to be, that sulphuric ether, under ordinary conditions, is as safe as can reasonably be expected of any agent which produces such beneficent results; that chloroform is safe in a vast majority of instances, but that fatal accidents do occasionally occur under circumstances in which they were not anticipated, and that these accidents can neither be foreseen, prevented nor remedied; that under rare conditions no known anesthetic is entirely free from danger; that the greater comparative safety of sulphuric ether is slowly being recognized and hence that its use is gradually displacing to a certain extent, its more potent and more dangerous rival.

The writer submits that this question of the relative safety of the two agents under consideration, ether and chloroform, is decided as firmly and as surely in favor of the former by an intelligent and searching experience of half a century as it is possible to decide any scientific point in the affairs pertaining to human life.

In spite of all that can be said in favor of ether and against chloroform, the fact remains, however, that there are a comparatively few conditions under which the latter is the preferable anesthetic, and it is the main object of this paper to draw attention to these cases. In a general way it may be said, that all operations liable to be attended with spasm of the glottis, edema of the larynx or lungs, profuse secretion of fluids in the air-passages and tonic contraction of the muscles of respiration, can be done under the influence of chloroform with more safety and satisfaction than under ether. Chloroform does not obstruct respiration to the extent that ether does. It does not irritate the mucous membranes, nor increase the secretion of mucous, nor produce as much spasmodic action of the muscles of the throat and chest, as does ether. For these reasons it is superior, as an anesthetic, in the following diseases and conditions:

All cases requiring tracheotomy and esophagotomy as membranous croup; laryngitis, acute, chronic, traumatic, specific or tubercular; edema of larnyx or glottis; malignant disease of throat and neck; deep cervical cellulitis; deep tumors of neck, as bronchocele; foreign bodies in air-passages; foreign bodies in esophagus; bronchitis in the aged; asthma.

Doubtless this list may be extended by the gentlemen present. I speak principally of those affections in which I have had personal experience. A consideration of its use in obstetrics is omitted for obvious reasons.

Every one knows the difficulty, and oftentimes danger met with in trying to etherize a child suffering from membranous or diphtheritic croup. The irritation of the drug produces spasm of the muscles of the throat, and a free secretion of mucous, breathing is more or less obstructed, the color becomes livid, the veins distended, and, if strong enough, the child struggles in all the agony of suffocation. Under these circumstances a hasty tracheotomy must be performed with the attendant risk of hemorrhage and strangulation. Chloroform produces few if any of these symptoms. Given carefully, the respiration is not impeded, the child's quiet is not disturbed, and the operation may be completed in a deliberate and careful manner. I have performed a good many tracheotomies under chloroform and have never met with a mishap that could be justly laid to the drug. I can speak confidently and strongly upon this point, and from the best of all teachers, experience.

The same remarks will apply with equal emphasis to all cases of acute or chronic stenosis of the larynx, from whatever cause. Contusions, lacerations and fractures of the larynx are very likely to be followed by dyspnœa, which in some instances may require tracheal

incision. A few years ago a man in middle life was admitted to the Boston City Hospital, who had injured his throat a week before by his efforts to push down a bone which he supposed had become lodged. He could swallow only liquids and those with great difficulty. The dyspnœa was so pronounced that he could not lie down for any length of time, and he exhibited that peculiar restlessness which is so marked a feature in all cases of laryngeal stenosis. An examination by the laryngoscopist revealed an abscess in the region of the epiglottis, attended by extensive induration in the immediate vicinity. Tracheotomy was performed very satisfactorily indeed under partial chloroform anesthesia. The respiration was not disturbed in the least by the drug. Ether would have almost certainly aggravated the dyspnœa, thereby complicating the operation and perhaps diminishing his chance for recovery. The patient got well.

Deep cellulitis of the neck, although not a very common affection, yet is a very serious one, sometimes terminating fatally. It may be dangerous by reason of sepsis, of edema of the glottis and by suffocation from a rupture of the abscess into the throat. I have known of fatal results from all of these cases. The treatment to be effectual must be early and radical and consists in making a free opening into the centre of the diseased tissues. The importance of the structures involved requires that this operation shall be done carefully and deliberately. Pressure upon the recurrent laryngeal nerves and other structures is very apt to produce spasm of the glottis and impeded respiration. This condition of affairs is much aggravated by the irritating effects of sulphuric ether, but not by chloroform. Hence the latter is the better anesthetic for these cases.

A man was under my care a few years ago suffering from an attack of deep and extensive cellulitis of the front and both sides of the neck. Through a misunderstanding he was given ether preparatory to an operation; when partially under its influence the breathing stopped, the face became deeply cyanozed and death from suffocation seemed imminent. This untoward result was averted for the time by an immediate tracheotomy, forcible inflation of the lungs through a catheter thereby expelling the free fluids, and artificial respiration. He gradually failed, and died the next day from shock and exhaustion. Judging from the usual effects of chloroform under these circumstances, it is fair to suppose that the shock of the operation would have been much less under its influence, that tracheotomy might have been avoided and hence that his chances for recovery would have been increased notwithstanding the profound prostration resulting from the disease itself.

I was recently called to the hospital in the night to see a man just admitted with this affection. The dyspnœa was severe, attended by paroxysms that threatened serious consequences. A deep collection of pus was evacuated by the Hilton method, under chloroform, with the greatest satisfaction to both patient and surgeon.

Many years ago I was requested by one of my colleagues, Dr. Wm. H. Thorndike, to administer ether to an old gentleman preparatory to tracheotomy for malignant disease of the throat at the base of the tongue. The effects of the anesthetic were extremely distressing. However carefully given, however much diluted with air, the vapor produced the most violent spasm of the glottis, rendering respiration entirely impossible. The operation was finally done without any anesthesia, and, as may be supposed, with a good deal of suffering to the patient.

This case forms a striking contrast to that of a woman who was under my care some years later for malignant disease of the deep glands of the neck. Constant and severe dyspnœa resulting from pressure, presumably upon the recurrent laryngeal nerves, demanded tracheotomy. The operation was done under chloroform with great ease and with perfect relief to the patient. It would not be difficult to believe that ether would have acted as unfavorably in the latter as in the former case.

Spasm of the glottis, with impeded respiration, is peculiarly liable to occur in patients with foreign bodies in the air passages or in the esophagus. Operations for their removal generally re-

quire time and careful manipulation. They cannot be done hastily, as can an emergency tracheotomy for stenosis of the larynx, and, therefore, it is essential to use the anesthetic that will cause the least disturbance to the patient. There can be no reasonable doubt that in a majority of cases chloroform is preferable to ether under these circumstances. The writer once removed a bean from the lower end of the trachea by incision, successfully. The child was in collapse at the time of operation, and required but little chloroform to keep her still. She recovered. Ether was given to another child in the hospital many years ago for the purpose of opening the trachea to remove a piece of a match, with a fatal termination. These cases require very gentle handling in every way, and the amount of anesthetic, as well as the kind, is of very great importance.

Chloroform has been used by the writer in three cases of esophagotomy with much satisfaction. In a case of malignant disease, the esophagus was opened on the left side of the neck in the usual way for the purpose of guiding a staff through the pouch above the stricture down into the stomach, upon which to pass a Symond's tube. Later it became necessary to do tracheotomy on this patient. Both operations were performed under chloroform without complication. This agent was used in the case of a man who had swallowed a plate of teeth which had lodged at the lower end of the gullet. It was removed through an incision in the neck, with no difficulty as regards the respiration. I also removed a copper cent from the esophagus of a child three-and-a-half years of age by incision under chloroform. The little girl speedily recovered. The action of the anesthetic in all of these cases was satisfactory in every way, and I have thus far seen no reason for using any other agent under similar circumstances.

The only unfortunate result I have had while using chloroform was that of an old lady suffering a good deal of dyspnœa from a large goitre. At her request I made an effort to intube the larynx, leaving the question of extirpation to be decided later on. A little chloroform was inhaled without difficulty, but during my efforts to place the tube she gradually sank away, and died in a few minutes. I am inclined to lay this unfortunate result to her extreme prostration, which was necessarily increased by my manipulations in trying to introduce a tube into a narrow, displaced, tortuous larynx, rather than to the anesthetic. It would have been wiser to have let her alone. This is the only mishap I have ever had with chloroform.

Kocher, of Berne, has recently reported one thousand thyroidectomies for goitre. One death resulted from bronchitis following the administration of ether. There were no deaths from chloroform. He always begins the anesthesia with chloroform, and continues it with ether.*§

Old people suffering from chronic bronchitis or edema of the air-passages are not good subjects for ether, as the irritation tends to increase the secretion, which occasionally becomes so profuse as to drown the patients in their own fluids. This accident is peculiarly liable to occur in heavy drinkers, in those suffering from chronic urinary disease (as stricture and its sequelæ), and in those profoundly prostrated by any serious affection (as strangulated hernia and malignant diseases). I once lost a patient in this manner when about to operate for a gangrenous inguinal hernia which had been strangulated a week. He took the ether well enough at first, but as the operation was about to begin, it was noticed that his respiration was obstructed by mucous, which increased with alarming rapidity even pouring out of his mouth and nose. He died in a few minutes. It is doubtful if chloroform would have had this untoward effect upon the bronchial secretions.

The statement has recently been made by some of the German surgeons,*|| that while the immediate danger from ether is much less than from chloroform, yet that the remote danger is greater by reason of the emphysema, bronchitis and broncho-pneumonia resulting from the anesthetic. This complication has been noticed too seldom in this vicinity to create suspicion or distrust. Before attributing these events to the drug, it

*§Boston Medical and Surgical Journal, May 23, 1895.
*||Medical Record, May 25, 1895, p. 672.

would be well to carefully investigate all of the circumstances attending the patient, before, during, and after the operation. Not a few persons, especially in hospitals, get cold from exposure during this time, and occasionally it terminates fatally. While the accident is probably not as frequent as in the days of the spray, yet the custom of surrounding the patient with wet cloths is not quite free from danger. It is well known that a person gets cold more easily when asleep than while awake, and it is not unreasonable to suppose that the same rule may obtain during the sleep of ether and chloroform. At all events, until these factors are eliminated, it is evidently unwise to attribute these complications to the anesthetic.

Another fact to be borne in mind is the peculiar insensibility of the bronchial mucous membrane of elderly people to the presence of blood and other fluids during an operation, so that no warning is given till too late to be of any avail. Not a few cases of this sort have been saved only by an emergency tracheotomy and artificial respiration. These facts do not necessarily preclude the use of ether in these cases, but they teach us to be extremely careful in its administration.

The inflammable nature of sulphuric ether is always to be borne in mind, but in actual practice there are comparatively few cases in which the drug is contraindicated on this account. The statement has been made, that ignition has taken place at a distance of fifteen feet.** It is difficult to understand how such an accident could happen, unless an immense volume of the vapor was allowed to fall from a height upon the flame. In the accident room at the City Hospital in Boston, most of the night surgery for many years has been done under a six-light chandelier, the inhaler being not over three feet distant. No such accident has ever occurred in that institution. The vapor of ether, being heavier than air, falls more freely than it rises, and hence is not likely to ignite under ordinary circumstances with the flame overhead. I have seen the ether sponge ignited a few times by the actual cautery, but only when it was brought within at least a foot of the inhaler. The only harm resulting was a slight singeing of the eyebrows. These accidents were all preventable, and do not by any means preclude the use of ether as the anesthetic in these cases.

It may be said that chloroform must be more dangerous than ether in the class of cases under consideration, from the fact that these patients are usually weakened and debilitated by the disease, and hence more susceptible to heart failure. Experience gives little support to this supposition. The most characteristic feature of the danger from chloroform is the fact, that about forty per cent. of the accidents occur in apparently vigorous, healthy people about to undergo some minor operation, as the pulling of a tooth, incision of a felon, etc.,†† and that usually death takes place during the early stages of the anesthesia, oftentimes within a very few minutes, and before complete insensibility is reached. And herein lies the danger of using this agent in minor surgery. This fact should be especially borne in mind by those practitioners who use chloroform in minor operations, but would not think of resorting to it in capital cases.

In conclusion, allow me to submit for your consideration the opinion, that chloroform is a more satisfactory anesthetic than ether for operations liable to be complicated by difficult or suspended respiration; that in those cases it is reasonably safe, and that when carefully administered, it may be confidently recommended to the profession for this particular kind of surgical work.

Good Advice.

It is not wise for local boards of health to stand around with their hands in their pockets waiting for physicians with pet theories to determine the preponderance of evidence as to whether a sore throat is produced by a Loeffler bacillus or by some other bacillus, or by a coccus. If the attending physician pronounces it diphtheria or any quarantinable infectious disease it is their duty forthwith to quarantine and isolate and use such preventive measures as will best protect the public. If later it is found that the disease is not infectious the quarantine can be raised.

** Wood's Reference Handbook of Medical Science, vol. i, p. 189.

†† Wood's Handbook, p. 190.

LOCAL ANÆSTHESIA BY THE INFILTRATION METHOD; ITS USES AND LIMITATIONS.*

GEORGE E. DAVENPORT, M.D., Bath, N. H.

Surgery is constantly becoming more exact as a science. The skilful surgeon, with improved instruments within his reach, is able to accomplish more to save human life, correct deformities and relieve suffering than ever before. It would seem that with our present knowledge there was only one thing lacking, one element of danger that cannot be overcome, even though many a physician goes through life without ever having occasion to be personally reminded of this danger. I refer to death from the use of anæsthetics commonly employed, which may come constantly or may be deferred for days, weeks, or even months, and directly attributable to the anæsthetic. Statistics vary all the way from one death in every 7,000 to one in every 15,000 cases in the use of ether, and three to four times as many with cloroform, while of the more recent anæsthetics and the various mixtures, which have to a limited extent been used, none are shown to have especial advantages over ether and chloroform.

Of the means for local anæsthesia, cocaine stands at the head, but with this drug the fatalities have been numerous; in fact, it has fallen into such disrepute that many physicians and dentists have abandoned its use altogether. Ether spray is applicable to a few surface operations only, and if not carefully used is apt to delay healing.

I wish to bring to the attention of this society a method of anæsthesia which is absolutely devoid of all danger, while at the same time it is applicable to nearly or quite 75 per cent. of general surgical operations, and to earnestly request each one of you who have not already used the method to give it a fair and impartial trial.

Last year in July Dr. Schleich, at the meeting of the German Congress of Surgeons presented the result of his labors in producing local anæsthesia by means of infiltrating the tissues with an innocuous liquid, reporting some three thousand cases, which demonstrated the entire success of the method. Nov. 27, 1894, Dr. H. O. Würdeman of Milwaukee, read before the Milwaukee Medical Society a paper on this subject, containing translations from Schleich's brochure, and the results of some experiments by himself and friends.

Previous to this, extracts from a letter of Dr. Cholena, of Berlin, to Dr. Wood, of Chicago, appeared in the Journal of the *American Medical Association* of May 26, 1894.

Since that time a limited number of surgeons in this country have tried this method to a greater or less extent. Careful experiments by Schleich demonstrated the fact that a liquid injected into the skin, causing a white wheal to raise, rendered the area within that wheal absolutely anæsthetic, the effect lasting usually about twenty minutes, during which time the skin within the area of the wheal could be cut absolutely without sensation. The anæsthetic effect being caused probably by direct pressure upon the peripheral terminations of the sensory nerves, assisted and prolonged by the minute quantity of cocaine or other narcotic drugs in the solution commonly used. There is also probably some chemical change, as the solutions lose their power entirely or in part when used at the temperature of the body. Pure water was found to produce anæsthesia, but the prodromal pain was too severe for its practical use. A .2 per cent solution of common salt caused the wheal to be anæsthetic without pain, excepting a slight burning sensation. From .2 per cent to 1 per cent solution of carbolic acid, .2 per cent solution of morphine, 3 per cent solution of sugar, potassium bromide, methyl violet, coffeine, antipyrine and other drugs all had an anæsthetic effect withou

*Read by title at National Association of Railway Surgeons, Chicago. 1885.

much prodrominal pain in solutions of certain strengths. Cocaine in a salt solution is efficacious in .2 per cent.

Each of the substances experimented with seems to have a particular strength in which it is most efficacious. Above and below this standard or zone they either become inert or lose much of their value.

Cocaine used in a .2 per cent would not be poisonous, even if two hundred syringefuls were used and it was all absorbed, which would be almost impossible.

"We must not lose sight," says Dr. Würdeman,† "of the cardinal fact that the anæsthesia exists only within the area infiltrated by these solutions, and that outside of that normal sensation remains, so that our method rests mainly on the principle of a complete artificial œdema of the field of operation."

"It has been asked why use the narcotic drugs at all; why the .2 per cent solution of salt is not used alone, if it will produce anæsthesia, as we claim? The salt solution is sufficient for all those cases in which we operate wholly within healthy tissues, although this is rarely the case in operations. We have always to deal with pathological changes, by which the normal sensibilities are more or less increased. The tenderness is occasionally so intense over inflamed tissues that the symptoms evince the presence of mechanical pressure. Anæmia and difference in temperature will not suffice to abolish the increased nervous function. Here we require the direct co-operation of the narcotic poisons, and for this reason I believe that it will be difficult to use physiologically indifferent remedies alone. However, as I have proven, cocaine, morphine and carbolic acid are active in solutions which are several hundred times weaker than those in common use."

After thoroughly testing the solutions in different strengths and combinations, Dr. Schleich advocated the following formula as producing anæsthesia with the least prodrominal pain, and without danger of narcotic poisoning:

No. 1. For operations on hyperæsthetic tissues.

℞

Cocaine mur.	.20	gr iii;
Morph mur.	.025	gr 1-3;
Natii Chloridi.	.20	gr iii;
Aq. dist. ad.	100.00	℥ iii;

M Sterilizat, addi. sol. ac. corb. 5 per cent m. ii.

No. 2 For most operations:

℞

Cocaine mur.	.10	gr iss;
Cocaine mur.	.025	gr 1-3;
Natii Chloridi	.20	gr iii;
Aq. dist. ad.	100.00	℥ iii;

M Sterilizat, addi. sol. ac. corb. 5 per cent m. ii.

No. 3. For superficial operations upon nearly normal tissues:

℞

Cocaine mur.	.01	gr 1-6;
Morph mur.	.005	gr 1-12;
Natii Chloridi	.20	gr iii;
Aq. dist. ad.	100.00	℥ iii;

M Sterilizat, addi. sol. ac. corb. 5 per cent m. ii.

All solutions, it is almost needless to say, must be kept sterile. It is better to make up a rather small quantity at a time and not keep a solution too long. A fine needle should be used, and it should be sterilized each time before being used, as from the multiplicity of the injections the danger of the infection is increased over what it is in giving a single hypodermatic injection of morphine, for instance. The solution and the syringe should be cooled to as near the freezing point as circumstances will allow, for the same solution which will produce anæsthesia when at or near 36 degrees Fah. will, when warmed to the temperature of the body, produce no such effect.

The technique of the operation is as follows: After thoroughly preparing the skin, as we would for any operation, the needle of the syringe is introduced almost parallel to the surface until the bevelled point is covered, pressure on the piston is then made, and if the needle has not been introduced too deeply a white wheal rises to the size of a dime perhaps; the needle is now introduced again at the periphery of this wheal and another produced in like manner. In this way we mark out the line of incision to any desired length. If the operation is to be a short one, not more than twenty minutes, make the line of anæsthesia broad enough to contain the line of sutures. If it is desirable to anæsthetize the deeper tissues it may be done through the skin; the subcutaneous tis-

†Translation of Dr. Schleich paper, Journal of the A. M. A. Dec. 29, 1894.

sue, fasciæ muscles, and even the bone can thus be anæsthetized.

"No tissue offers any deviation from the dictum: Every tissue is made anæsthetic that can be artificially edematized by our solutions. This holds good for skin and mucous membrane, periosteum, synovial membrane, facia, muscle, lymph glands, nerves. viscera, and even bone. A bone whose periosteum has been infiltrated in its whole circumference may be divided by saw or forceps without causing any pain."

"If during the operation we reach larger nerve trunks they may be anæsthetized for a short time by touching them with a five per cent. solution of carbolic acid, or by injecting them, if we do not care to infiltrate the surroundings. After incision in all cases the incision should be kept open by gentle and steady traction and the infiltration cautiously pushed into the depths of the wound. In amputations the nerve trunks must be anæsthetized separately.

Dr. Schleich again well says: "It is a personal error to cause a person pain with this method wherever infiltration is technically possible."

In operating on highly inflamed tissues it must remembered that the first injection should be made entirely outside of the inflamed area and then gradually approach it from one side or in some cases from all sides until the whole area is anæsthetized. Never inject inflamed tissues primarily.

Dr. H. V. Würdeman, of Milwaukee, has performed quite a number of operations with entire success by this method. Some of his colleagues, notably Dr. Thos. Hay and Dr. Burgess, have done a variety of operations, and in every case where the infiltration was properly done there was no pain.

My first operation by this method was the removal of a needle from the thenar eminence of the hand, it having been driven deeply into the tissues and broken off, requiring considerably searching before I was able to locate it. I found a little difficulty in injecting the skin in this locality as it was very thick and calloused. The operation was done without pain, however, and the wound healed by first intention.

The next case was a deep seated abscess of the labium major. The parts were highly inflamed and so sensitive that the slightest touch caused pain. The infiltration was rather tedious, but after being thoroughly done the abscess was opened and the pus evacuated without pain. An epithelioma on the left side of the nose and extending into the corner of the eye of the size of a silver quarter was removed without pain. A severe injury of the ear and side of the head was stitched and dressed without other anæsthetic. The ear in this case was cut entirely through at about its center. The amputation of a crushed finger and several other minor operations have demonstrated to me practically the entire success of the method in minor operations.

According to the statement of Dr. Schleich the limits of this method are only reached by the technical impossibility of infiltrating the field of operation. A certain amount of skill is necessary to infiltrate rapidly and accurately, which can only come from considerable experience. I am far from possessing such skill as yet, but the average physician in country or city practice can operate with a little preliminary practice by this means on all furuncles, carbuncles, sebaceous cysts, epithelioma, lipoma, deep-seated abscess, hemorrhoids, phimosis, felons, ingrowing nails, etc., suture wounds of the integment, amputate toes and fingers, etc., with no pain to the patient and absolutely no danger of poisoning and death from the anæsthetic.

It would seem from the facts which are now accessible upon this subject that anæsthesia by infiltration will replace and should replace the cocaine anæsthesia in all cases in which it is now used by injection, and general anæsthesia in a large portion of those cases in which pulmonary anæsthetics are now used. In laparotomy for removal of the ovaries, hysterectomy, cholosectomy and nephrectomy general anæsthesia cannot be replaced.

In operations for strangulated hernia, radical cure of hernia and appendicitis there is no reason why this method should not be applicable. In major amputations, while it is possible as demonstrated by Schleich and his colleagues to perform them without pain by infiltrating the tissues, yet I should judge that general anæsthesia would be preferable

in healthy subjects, but in those cases in which a general anæsthetic is contra-indicated the infiltration method would be invaluable.

An argument against this method of anæsthesia might be the time it takes to infiltrate thoroughly for a considerable operation. However, as the anæsthsia takes place immediately the surgeon who has had sufficient practice could in the time which it takes for a half-dozen injections of a 4 per cent solution of cocaine to take effect make half a hundred injections if necessary. The safety of the patient moreover is above every other consideration. If this method offers a means whereby we can lessen the mortality of anæsthesia by ever so small a fraction then we as conscientious surgeons, who in every case do the best that is in our power for our patients, should use it.

Local anæsthesia by means of an ice block packed with common salt or chloride of ammonia, as first used and practiced by Dr. A. J. Mullen, would, I presume, in some cases be of considerable value, though healing might be retarded if the parts were too much frozen. I would put it down as a maxim of conservative surgery that a local anæsthetic from the use of which no possible harm could come to the patient should be used in every case possible, to the exclusion of the general or pulmonary anæsthetics. Yet there are cases of crushing injuries where dirt and grease are ground into the flesh, and which, from the nature of the injury cannot be operated upon and dressed quickly, in which the shock would be less and if the patients chances of recovery greater were a general anæsthetic used rather than a local one.

All these things must be taken into consideration and carefully weighed by the surgeon, then the arguments for and against the use of a general anæsthetic are about equal use the local anæsthetic. In closing I would again ask you to try this method and at a future meeting report your results. If we can save one human life by refraining from the indiscriminate use of pulmonary anæsthetics, then indeed is the name of Schleich worthy of being emblazoned on the pages of history as one of the world's benefactors.

HOSPITAL FOR COLORED PEOPLE.

The Frederick Douglass Memorial Hospital and Training School has lately been established in this city. The medical staff is as follows: Chief of Staff, Dr. N. F. Mossell; Head Nurse and Matron, Miss Minnie M. Clemens; Consulting Physicians, Dr. James Tyson and Dr. Roland G. Curtin; Consulting Surgeons, Dr. John B. Deaver and Dr. Thomas G. Morton; Consulting Gynæcologists, Dr. B. F. Baer and Dr. Hannah T. Croasdale; Attending Surgeons, Dr. Henry R. Wharton and Dr. N. F. Mossell; Attending Physicians, Dr. E. Clarence Howard and William H. Warrick; Attending Gynæcologists, Dr. Caroline V. Anderson and Dr. George R. Hilton; Children's Department, Dr. J. T. Potter and Dr. D. W. Odgen; Dental Surgeon, Dr. William A. Jackson; Pharmacist, Henry M. Minton, Ph. G.; Ophthalmologists, Dr. H. F. Hensell and Dr. A. A. Stevens; Resident Physician, Dr. D. W. Postles.

Twelve of the members of the medical staff above are colored people, and with exception of Dr. Caroline A. Anderson and Dr. E. Clarence Howard, Dr. William A. Jackson, Pharmacist Minton, and Dr. D. W. Postles, are all graduates of the University of Pennsylvania. Dr. Caroline V. Anderson is a graduate of the Woman's Medical College of this city; Dr. William A. Jackson, of the Philadelpeia Dental College; Henry M. Minton, the pharmacist, was the honor man of his class at Howard and graduated at the Philadelphia College of Pharmacy; Dr. D. W. Postles, the resident physician, is a graduate of both Lincoln University and Howard University, and was one of the first colored men to successfully pass the State Board of Medical Examiners. Dr. E. Clarence Howard is one of the oldest colored practitioners in the city, and is a graduate of Howard.

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PHILADELPHIA, SATURDAY, DECEMBER 7, 1895.

EDITORIAL.

A NOVEL PIPE LINE.

A YEAR since, in commenting upon some phases of the sensational nonsense which, ever and anon, is foisted upon the public as sanitary science, and apropos of the fad for individual drinking cups, the REPORTER was impelled to offer relief to those unfortunate ones in whom imagination quite o'er shadows common sense. It suggested a simple, economical and harmless method for outwitting those malignant micro-organisms which, in theory, ever lie in wait to devastate humanity seeking to assuage its thirst.

In general terms the apparatus may be described as consisting of a hole of any desired dimensions, surrounded with a casing of any impervious material, rigid or flexible, and fitted with a sterilizer at one end and a sucker at the other.

The superiority in every respect of this device over all others offered to avert the dangers inherent to the cup of the Holy Communion, will be evident to all who so regard it.

When this under-done crust was cast upon the waters it was in hope that it would [illegible] food for the minnows, and without a thought of meeting it again. But after many days it has returned, and the REPORTER is gratified to know that it has relieved the morbid fears of at least one sensitive sanitarian.

It is only a straw, but it is destined to snatch multitudes from perils unknown and therefore inconceivable. As was to be expected, the wisdom of the suggestion was concealed from the wise and prudent, and skeptical science has lost an opportunity to claim priority in introducing an inestimable boon to humanity. The revelation was indeed not to the wise and prudent.

A Western contemporary is responsible for the following:

"If current report be true, the last conspicuous personage who has taken fright at the nameless dangers that are said by some, to lurk within the holy communion cup, is the Rev. T.

DeWit Talmage; and we are creditably informed that the health of the communicants of his new charge in Washington is to be guarded in a startlingly unique manner.

"Dr. Talmage has recently been called to share with the venerable Dr. Sunderland, the labors and emoluments of the pastorate of the First Presbyterian Church of the Capitol. No church in this country draws more distinguished audiences within its portals. None whose past is more crowded with the associations of great men and events. At its chancel rail have stood, as brides, the daughters of the great, and bridegrooms who have hardened into men who have moulded the nation's policy. Here, too, have been performed obsequies over others no less distinguished, cut down while serving their country at the seat of government. These facts are recalled that the full force of Dr. Talmage's innovation may be appreciated.

"Hereafter, on Sundays when the Lord's Supper is celebrated, *straws* will be distributed in the pew racks throughout the First Presbyterian Church in Washington, and instead of any one defiling the cup, or running the risk of infection, each will extract the wine by means of a straw. It must be confessed that, in view of Dr. Talmage's well-known *penchant* for sensations, the suspicion involuntarily arises that he has seized the passing prejudice, current in some medical circles, to get himself talked about, and to initiate himself in his new place in a fittingly characteristic manner. The picture that the innovation calls to view is not so dignified as it should be. The idea of the President of the United States, cabinet ministers, judges of the supreme court, senators and congressmen adapting themselves to the new condition is a little ludicrous, and brings to mind the words of the Hoosier poet, something about 'a suckin' cider thro a straw.' But who knows? Perhaps they will think of the same thing, and the thought will carry them back to the old orchard of their boyhood, and the beautiful Indian summer days, when, careless and happy, they were, sure enough, sucking cider through a straw, and the reminiscence may avail more than any stately ceremonial."

It distresses us exceedingly to introduce any element of doubt in this scheme of sterilized sanctification, which commands less reverence than does its philanthropic promulgator. But it seems only right to call the reverend gentleman's attention to the fact that there are details, which are easily overlooked, any one of which neglected, would vitiate his desired sterility, make his straw stubble, render his entire quarantine scheme futile and a bye-word and a hissing among men. For instance, the straws must be sterilized; all persons handling them must be absolutely sterile; the pew-racks must be sterilized, and to assure this the entire church edifice, and its furniture likewise, must be made and kept sterile—to say nothing of the congregation.

We venture one more suggestion in this connection. There is but one way to accomplish the certain destruction of microbic life, and that is through the living flame,—refinement as by fire. By all means sterilize the straws before the service—by sujecting them for an indefinite period to the flames of the furnace fire. When recovered from the fire the straws will be effectually sterilized and in a condition, the only one tolerable for use in the holy sacrament of the Lord's Supper. Any qualities for protection that may be lacking in the straw sterilized thus will be amply compensated by the sincere faith and reverent devotion of those taking part in the function.

A sterilized church is an offence to Heaven and a mockery to mankind.

SOCIETY REPORTS.

CINCINNATI OBSTETRICAL SOCIETY.

Meeting of June, 1895.

[CONCLUDED.]

DR. HALL: I protest the remarks of the last two speakers in reference to non-operation and the medinical treatment of gall-stones. I don't believe any remedy will cure a patient with gall-stones. All remedies are simply for the comfort of the patients, Carlsbad not excluded. A patient operated upon not long ago, had all these remedies for twelve years, and finally had a stone driven into the common duct for nine months, profound cholemia, operation, leakage from the common duct, peritonitis, death. A perfectly easy operation for stone in the gall-bladder—such an one as we could do with perfect result ninety-four times in a hundred—was converted by delay, while seeking cure by medicinal remedies for ten or twelve years, to a desperate case, requiring a very difficult operation which was followed by death from that cause. That case does not stand alone. But the only point I wish to make is that the statement shall not go out from this Society, unimpeached, that medinical treatment is the correct treatment for gall-stones. I think it is the wrong treatment for gall-stones. I do not say the large majority of cases need surgical treatment, but certain symptoms may develop in which operation is imperative. When the patient suffers from pain, when there is obstruction, when it is plainly evident that the patient is going to be harassed and life endangered, an operation should be advised, and not Carlsbad.

DR. E. W. MITCHELL: The general practitioner will see a dozen recoveries with medicinal treatment to one needing operation, while the specialist will see cases from a rather different standpoint. So it seems to me it is well to compare notes. It is a great mistake to make operation a *dernier ressort*, because the prognosis is extremely grave when the patient is in extreme cholemia; the blood change is so pronounced that the patient will die often in spite of the relief of the obstruction. Because of the amount of change in the blood, the patient cannot rally. And so we need to balance the two extremes. I think Dr. Hall has well defined the cases which need operation. Certainly it is a mistake to let a case go on month after month or year after year. But some cases will carry a gall-stone too large to cause obstruction many years, and may carry it to death without any bad results. Often we find gall-stones on autopsy which have caused no trouble during life. I have here some specimens. These fragments represent two mulberry calculi. You can see by putting them together, they would make two very large stones. They were removed from a lady sixty-two years of age. The patient had symptoms of gall-stone several months before coming here, and was while here extremely prostrated for awhile, having several attacks. She had some hectic symptoms, indicating suppuration. As soon as the patient could be put in good condition for operation she went to Christ Hospital as a private patient, and I removed these stones. The gall-bladder was firmly adherent to the anterior abdominal wall. It was a little difficult to grasp the stones and remove them. One was fitted into the neck of the gall-bladder. The patient made an uninterrupted recovery. The fistula healed before she left my care. But I have recently had a letter from her stating she is suffering again from similar symptoms. Possibly

she has a recurrence of calculi; or it may be she is now developing malignant disease. It was impossible at that time, of course, to examine the liver or the ducts by the finger externally, as the gall-bladder was adherent all around. There is probably another stone. One of my friends, who saw the case just prior to the operation, was impressed that it was a case of malignant disease and not of gall-stone.

These specimens were from a patient sixty-five years of age. In the first case the diagnosis was quite easy, but in this case the diagnosis was obscure. The patient had a cancer of the mammary gland (carcinoma) removed. She made a prompt recovery and had no evidence whatever of return, no enlargement of the axillary glands. Her health was good up to four or five months prior to the operation. For four or five months she complained of rheumatic pains, suffered a good deal from lumbago without any definite symptoms, but never complained of any pain in the epigastrium nor in the region of the gall-bladder. She had a fair appetite and digestion, but was not so well as usually. A few weeks before the operation she was somewhat jaundiced, but there was no pain or tenderness over the region of the gall-bladder or epigastrium. Of course, the first suspicion would be that there was a malignant disease developing in the liver. This jaundice very gradually increased with the progressive loss of strength and failure of appetite, until finally she took to her bed. I could then make out a little enlargement, I thought, of the gall-bladder, and asked Dr. Reamy to see the case with me. He was inclined to think there was a possible obstruction of the gall-ducts; yet there was a possibility of cancer and of catarrhal jaundice. The question of operation was talked over at our first meeting, but was not proposed to the family until several days afterward; and it was proposed then, since the patient was progressively losing flesh, that an exploratory incision should be made. It was perhaps a week or two before we could obtain the consent of the friends to this, especially since we felt it our duty to state plainly to them that it was possibly a case of malignant disease and an operation would not benefit her. They finally consented to an operation. This case, I think, is a good illustration of the mistake of delay. During these days we were waiting to get the consent of the friends the jaundice increased considerably. The urine was full of bile, and the stools were clay-colored. Upon operation we removed these stones. One of them was pushed back from the upper end of the common duct without any great difficulty. The patient rallied and did well so far as the operation was concerned, but after some two weeks, died from exhaustion and probably from the condition of cholemia. The case, I think, is worthy of reporting in this connection, because it illustrates the mistake of putting off the operation so long. I believe if the patient had been operated upon as soon as jaundice developed, her life might have been prolonged. After death we were allowed only to make such examination as we could through the incision. There had been, after the operation, decided darkening of the stools, showing some, perhaps considerable, bile got through into the intestinal canal. The liver was but slightly enlarged, and there was no evidence, so far as we could determine by palpation, of any malignant disease whatever in the liver.

Dr. Palmer: The remarks of the last speaker have induced me to speak on this subject. I have never had a case under my care requiring surgical interference. That it is required at times all must admit, but all surgical interference ought to be considered only after failures with medicinal agents, or only in very bad cases seen quite late. Many, if not most, patients seen at all early in the history of the affection are entitled to a judicious use of certain medicines, as Carlsbad waters at Carlsbad Springs, if they can afford it, or Carlsbad salts, obtainable in this country, or the salicylate of sodium, or the phosphate of sodium. There can be no question of the usefulness of Carlsbad in biliary calculi. Salicylate and phosphate of sodium have served me useful purposes. I am disposed to think that they rank much in the order named. All cases, unless very bad—so bad as to demand prompt surgical procedure—may be, probably will be, benefited by these remedies, in their use months may be profitably consumed.

Dr. Johnson asked how these remedies act. Probably by increasing the quantity and altering the quality of the biliary secretion, dissolving the biliary calculi.

Dr. Reed: I think I am acquainted with the case referred to by Dr. Zinke. It is one I was called to quite unexpectedly, and, without any knowledge that the doctor had been previously connected with it, I made a diagnosis of recurrent appendicitis. The pain was located in the right iliac region. The patient entered my hospital for the purpose of undergoing operation. For awhile she remained to overcome a chronic constipation. She developed then, signs that caused me to say we would probably find gall-stones. So I simply made the incision a little further to the side and extended it up with a little increase in obliquity, removed an adherent and catarrhal appendix through the lower end and a biliary calculus through the upper end of it, and she got well.

One other point. And I am glad that case was referred to, because it brings us to it. I must raise a protest against the undue continuance of medical treatment in obvious cases of gall-stone. I do not believe all cases should be operated upon; but I have never had a fatality to mar my record but it occurred from complications developed during the prevalence of medicinal treatment. So, while I concur that in a few cases we should give some chance of recovery without operation, yet we should not let them run through months, because fatal cholemia may develop in a week. Such cases should not wait long, because you may then have an occlusion of the ducts; but on the staining of the sclerotic, particularly in the presence of a persistent tenderness in the hepatic region, operate.

Dr. A. W. Johnstone: I have always held no man is fit to be a surgeon until he is a good practitioner and knows all a practitioner should know. There are two complicating diseases I have run across in my operative work—tuberculosis of the gall-bladder and peri-hepatitis—both of which very closely simulate gall-stone, and for which I have operated. A very large gall-bladder, filled with purulent material and containing only one or two little stones, was stitched to the skin and the patient made a nice recovery. In a year the man was dead with all the symptoms of tuberculosis. On post-mortem examination I found masses of "cheese" in the liver. The sinus had never closed, and was studded with tubercle from one end to the other. Another case was one which a good physician, sent to me to do a cholecystotomy on, last spring. I opened the abdomen fully expecting to find gall-stone, but the gall bladder was about the only healthy thing in there. It was absolutely free,and not distended. The woman had attack after attack of fever, and the only way I could account for it was that through dense masses of adhesions I felt the head of the pancreas, which seemed somewhat enlarged. I knew I could do nothing with it and left it alone. There was nothing but a perihepatitis, which runs its regular course, and whenever she went out and got a cold she would have an attack.

There are other things. I have had no less than two cases in the last few months diagnosed as gall-stones which turned out to be cases of inter-menstrual pain. I found, by watching the time of the pain, it occurred at the close of the ninth and beginning of the tenth day. I watched it three or four months. It was an inter-menstrual pain which was mistaken for gall-stone colic. The patient was a young woman who had paid little attention to herself. Another young woman was sent to me to do a cholecystotomy on, but she did not give a good history for it. The attacks came on after the birth of her child, and she had had no such thing before her marriage. The pain was located about the end of the eleventh rib. She was sent from the Pacific Coast and I kept her for several weeks, hoping she would have one of these attacks, but it would not come on. She had a decided metritis, and the appendages were somewhat damaged, but not enough to justify their removal. I finally sent her to her relations in the city, and watched her for three or four months. I let her in the meantime go to New York, hoping to bring on an attack, but no attack occurred. Then her child had convulsions and came near dying, and soon afterwards she had an attack. When I arrived she said: "I have that lump at last, and I want to show it to you." I found an absolutely tympanitic mass of

the colon. She has damaged appendages, and I found the attacks always came on, when I quizzed her closely, like an inter-menstrual pain.

Now there is another point I wish to speak about. First and foremost, we must remember we are physicians, and make our diagnosis as quickly as possible. But Dr. Reed and Dr. Hall are right—don't let the patient run down. We have the one little common-sense rule—when it is more dangerous to let the case run than to make an exploratory incision, which I believe is one-third of 1 per cent., make the exploratory incision. This often seems to be just what is needed to start the case off right. It gave me the cue to the case I have just mentioned. I would always lean to the exploratory incision, and I think it is less dangerous to make an exploratory incision than to let a patient go on jaundiced week after week.

Now to come to gall-stones themselves. I am glad Dr. Mitchell has brought these specimens to-night. The last one is nothing but inspissated bile.

They are little fellows. One is nothing but dried bile, showing the patient had been on a spree or gotten the digestion a little upset, and the bile dried. The other, though, is a totally different thing. It is the kind that is capable of relief, if anything is, by medical treatment. And it puts us to the necessity of proving the negative when we say such treatment doesn't do any good. I have known men who had gall-stone colic ten or fifteen years ago, and I have nursed them through attacks, and to-day they are perfectly comfortable. I would not think of operating upon them. The large specimen presented, which is crushed, is the same thing as the tartar on the teeth. The catarrh of the intestine simply extends up into the gall-bladder, and there sets up a catarrhal cystitis, and you have the phosphatic deposit, and that I believe nothing on earth will do any good for but the knife. And if you tabulate the cases of operation I believe you will find those are the cases which require operation. The cases of inspissated bile may slip out and do no harm.

A number of words of warning about waiting too long has been given. I will add one more. A man came to me and stated the case of his brother, who had attack after attack from gall-stone, and wanted me to go down and operate upon him in the morning. I told him I would meet him at the first train in the morning. We could not go sooner. I told him, however, I thought his brother would be dead before we got there. A telegram came and turned me back with the information that he was dead. They sent me a box of stones, which had blocked the common duct. The common duct was plugged very tightly, and the other stones were driving these stones into it. We must remember that pain and cholemia are not the only things to dread in these cases.

In this, just like in every other disease, don't wait until you see the running down itself, but when you see the tendency is bad—and that may be measured by months or weeks or days or hours—remember a simple little exploratory incision is far safer than waiting and waiting and waiting until you have gone you hardly know where.

Dr. Johnston: While there are hundreds and thousands of persons possessors of gall-stones who either do not present any symptoms of gall-stones or are harrassed with pain through a long period of years and die of other causes, there are a goodly number who die of billiary calculi. I know three or four patients who died from gall-stone. In one, a woman some fifty years of age, whose trouble was diagnosed as cancer of the liver, there was found post-mortem about a pint of gall-stones. The next case occurring in the first year of my practice, was a woman who was suddenly attacked with excruciating pain and died in a few hours. She simply died of pain in spite of the free use of morphia. The third was a patient who had suffered ten or fifteen years with gall-stones. At the time I saw her I advised an operation, and told her she might die from an attack in the following week, or live ten or fifteen years and die of some other disease. Shortly afterward she had an attack and died.

It is sometimes very difficult to make a diagnosis; and even if you find stones passing in the stools you are never sure whether those stones are the last or not. If you should make an operation in such a case and find no stone, you would

be in quite a predicament unless you informed the patient that the operation is primarily exploratory. It is somewhat difficult to tell what cases to operate upon. You must study each case that comes to you from every point. The case I reported suffered four years and was twenty-two years of age. How much longer would this have gone on? Nobody knows. Would it have been right to have let her suffer every week or two from stones, when she could be relieved of a disease which might have lasted for years and years? I think in a case of that kind an operation should be done. Cases that have been icteric for only two or three weeks you can probably treat with some safety, but if they have been icteric for several years it is almost impossible to do anything with them. Now, in diagnosing stones with the aspirating needle, you can see that it would be almost impossible to strike a small gall-bladder in which there are but few stones. In the case I reported it would have been almost impossible to have struck the gall-bladder.

It seems to me if we have any remedy that will dissolve these stones in the body it ought to dissolve the stones out of the body. I have placed these stones in vials and put a great many chemicals on them and tried to dissolve them, but did not find anything that had solvent powers of any moment.

DR. MITCHELL: Did you try glycerine and olive oil?

DR. JOHNSTON: Yes, sir. The reason I made these experiments was to find out whether I could dissolve them, so that in case of stone in the common duct we might inject the remedy against the stone and probably dissolve it *in situ* instead of having to cut into the duct.

As it is impossible to dissolve these stones in the laboratory with drugs which would not be deleterious if introduced into the human system, I think it is useless to administer drugs for their supposed solvent power on gall-stones.

DR. MITCHELL: The fact that none of these remedies may dissolve the stones out of the body, or perhaps in the duct, is not a proof the medicines will do no good. They may so modify the bile as to change the stones or force them out, and have some action aside from their soluble properties.

DR. REED: Is there any conclusive evidence that any remedies will dissolve such concretions?

DR. JOHNSTON: No, sir.

DR. HALL: Then, is not all treatment simply for the relief or palliation of the patient?

DR. JOHNSTON: No, sir.

ABSTRACTS.

THE BURIED TENDON SUTURE.

At the last meeting of the Southern Surgical and Gynecological Association, held in Washington, Dr. H. O. Marcy, of Boston, read an instructive paper upon the history of the buried animal suture, and the best methods for its preservation and use. Dr. Marcy was the first to suggest the employment of buried sutures and to demonstrate their value. His first contribution upon the buried catgut suture was published in 1870. In 1880, he substituted tendon for catgut, as in every way superior, and in many articles has called the attention of the profession to the importance of its general adoption.

Dr. Marcy stated that the defect of catgut is inherent in its structure, and it cannot be rendered satisfactory by any method of preparation. "The connective tissue sheath of the intestine of the sheep from which catgut is manufactured has its ultimate fibres disposed in an oblique direction crossing diagonally. This serves the physiological purpose of foreshortening and distention as well as strength." The violin string (catgut of commerce) is not unlike a very thin

piece of tissue silk, which has been cut diagonally and then twisted. This would make a very imperfect fish-line, and the comparison is not overdrawn. When dry, the gut is strong; but when wet, it is flat, elastic, and slippery. Chromicizing only partially remedies this defect, and sterilization by any process cannot correct the damage which the intercellular cement substance has sustained from bacterial infection, and the masceration, to which, in preparation, the catgut is necessarily subjected.

Properly prepared tendon not only escapes these injuries, but has an entirely different ultimate structure. The connective-tissue cells are disposed parallel to each other and are the strongest structures of the animal economy. Of equal weight, carefully selected tendon will sustain a tension equal to that of silver wire. Tendons taken from the freshly-killed animal are quickly sun-dried and kept dry until their final preparation. Soaked in a 1 to 1,000 mercuric solution until supple, the tendons are carefully cleaned, assorted, and dried between sterilized towels. They are then chromicized until of a dark golden-yellow color, and preserved in sterilized linseed oil to which one-tenth part of the crystals of carbolic acid has been added.

Sutures thus prepared improve with age. When desired for use they are soaked in a 1 to 1,000 solution of bichloride of mercury until supple. Preservation in absolute alcohol, boiling in it under pressure, boiling in kumol (oil of caraway seed)—indeed, preparation by any of the many methods suggested for the sterilization of catgut—serve only to injure the inherent structure of tendon, and are not to be commended.

The tendons from the tail of the smaller varieties of the kangaroo furnish by far the most valuable suture material yet found. The anatomical construction of the psoas muscles of the rat, squirrel, and the opossum is not unlike that of the kangaroo; each fasciculus having its independent tendon extending the entire length of the tail. The tendons of these smaller animals are too short and too fine for general use, those from the large kangaroo too large. The latter when sub-divided fray and are less valuable.

Dr. Marcy reported that from various sources kangaroo tendons have been put upon the market which are very defective. One lot of three hundred pounds, collected for him, was almost entirely from the large kangaroo, and so undesirable that he refused its acceptance. This has found its way into the American market, and is being distributed to the profession. Selected tendon should be furnished, all prepared, at ten dollars per hundred, although usually sold at a much higher price.

Dr. Marcy, in closing his paper, expressed the belief that all aseptic wounds, including even the larger amputations, should be closed in layers by buried tendon sutures without drainage. The edges of the skin should be coapted by means of a parallel continuous buried suture (sub-cuticular), and the wound sealed with iodoform collodion, strengthened by a few fibres of cotton.

The advantages of the buried sutures are briefly as follows: Aseptic, buried in aseptic wounds, they remain aseptic and the repair is primary without inflammation, pain, or suppuration. The iodoform collodion seal renders subsequent infection impossible. No sutures are to be removed, and no other dressing is required. The tendon is absorbed so slowly that it may be traced in the tissues months after implantation, and ultimately it is replaced by a band of vitalized connective tissue which serves as a permanent re-enforcement of the united structures.—*Boston Med. and Surg. Jour.*

Triticum Repens.

Couch Grass is an old remedy, and can be relied upon in its limited field of action. Where there is bloody urine, with no pain or soreness to indicate the exact location, and where exercise decreases the amount of blood, it proves most satisfactory; it is also frequently beneficial in cases of strangury and irritation. The infusion is apparently the most effective form for prescribing, but where this is inconvenient the fluid extract in doses of one to ten drops, well diluted and administered every hour or oftener, will perhaps answer as well. This old remedy deserves a trial at the hands of the younger physicians.—*Eclectic Medical Journal.*

DIET FOR THE SICK.

HELEN LOUISE JOHNSON.*

Without proper cooking no food is palatable, and unless the palate is satisfied, food is practically useless. Hunger compels a person to eat, and in his choice of food the palate is his guide.

In general, the needs of no two individuals can be satisfied by exactly the same diet. In sickness it is the province of the physician to adjust the food to the condition of the patient. In convalescence the taste of the individual or the judgment of the nurse, or both combined, will usually not fail of good results. Bear in mind that a sick person is not in the same condition as ourselves and, no matter how absurd his cravings may seem they may be but natural longings for that which his system needs.

In the first place, I want to tell you how to prepare beef juice. Take a pound of beef from the round and cut it very fine. Put it in glass jar and place the jar in cold water on the back of the stove, where it will slowly heat for an hour; then bring it to the front of the stove where the water will simmer not boil, for an hour.

Beef tea is made much the same as beef juice, with the addition of a cup of cold water to every pound of meat before the meat is put in the jar. The beef is also taken from the round and chopped very fine.

Beef extract and tea are entirely different things, but the distinction is very rarely known. If the patient is taking a tablespoonful of beef juice, he is taking as much nourishment as there is in a cup of beef tea.

Beef juice or extract is prepared in many different ways. In giving a lecture on soups, I explain why we put cold water on meats. The principle applies to beef tea as well as to making soups. If you add hot water it coagulates the juice, while the cold water draws out all the juice. Hard water prevents the juice coming out also. The moment that salt is added to the water, it makes it hard and does not let the juice out. If the water be very hard, soda must be added, which will make it soft.

Now, what I want to do in a "sick diet lecture" is rather to suggest what to do. Have a physician upon whom you can depend, and I can tell you nothing better for your guidance than never to have a physician unless you can place reliance on him. When beef tea might he given a patient, you must consult your physician. If the physician does not know how to prepare it, he will, at least, tell you what to prepare.

Beef juice is an important part of the sick diet. When your patient is sick a long time he often becomes very tired of it before many weeks are over, and the greatest care must be taken in the preparation of his food. Pepper must never be added to the beef tea, which is an important point in serving it. Pepper and vanilla must be done entirely away with; they have no place in the diet of the sick, unless prescribed by the physician.

In preparing beef juice you can broil the beef. I am going to take a pound of beef and show you how much juice comes from it when it is broiled. Beef tea or beef extract rarely look well unless they are colored, and consideration in this matter should be had, particularly for a patient in a reduced state.

In making beef essence or beef tea, buy the best meat, as good beef tea cannot be made from gristly meat. Take the beef from the round and put it on the broiler, and broil it only enough to start the juice; chop it fine; slowly heat it, never passing the simmering point. Beef tea and beef extract must never boil so the juices are coagulated. Season with salt, but never put in a slice of onion. Beef essence may also be made by chopping the meat from the round very fine and putting it in a braising-pan, with a bay leaf and a piece of celery. The pan may then be placed in a moderate oven, and the meat left to stand there until the juice is well started.

* Editor *Table Talk.*

The juice is then squeezed from the meat and served as in the foregoing instance. The braised beef extract tastes entirely different from any of the other juices, and it is a pleasant change when a person has to take it from day to day.

I now want to speak on the subject of gruels. The gruel is usually served as a porridge, and I first want simply to show you the consistency in which gruels should be served.

The farina gruel, which is a form of gruel that is the easiest to give because the most palatable, is prepared in this way: To a cupful of boiling water add a salt spoonful of salt; when boiling, sprinkle in one tablespoonful of farina. When it has cooked about ten minutes turn it into a farina boiler and add a cup of milk and cook again for about five minutes. Milk should never be boiled to give to a patient unless in severe cases of dysentery or other serious diseases, when it must be boiled. Milk should always be scalded. Scalded milk can be taken day in and day out. I think boiled milk is thoroughly indigestible. The moment it is cooked, after taking it a few times, even three or four times, the stomach rejects it. In cooking farina gruel in which milk is cooked, never do anything more than scald the milk. The farina boiler should be used. The farina boiler is a peninsula—a sauce-pan surrounded on three sides by water.

Whether a thing is palatable or not to a patient depends much upon how it is served, and these things are rarely served in a proper way. As much depends upon how it is served, the proper serving of it will help much toward curing the invalid. If you want to sweeten the gruel a little granulated sugar or loaf sugar may be used; pulverized sugar should never be used for the sick, and ordinarily, people do not like it. It should be remembered that gruel is a gruel and not a porridge. It should be served so that it can be poured into the patient's mouth if necessary—so that it can be poured down his throat instead of having him sit up and be fed with a spoon.

We now come to milk-punch and egg-nog. The best milk should be used. Skim milk is not food. Milk punch and egg-nog want cream or very good milk. They want that which gives energy, and skim milk does not give energy. In making milk punch scald a cupful of milk and add two teaspoonfuls of sugar to the milk and stir until dissolved, then add a tablespoonful of brandy. Never use wine unless a physician tells you to. Invalids must take stimulants entirely under the advice of a physician, never according to their own ideas. Always use brandy unless otherwise advised by a physician. After you have beaten it until it is foamy, do not fill the glass so it runs over, but fill it almost to the top. Have a small glass and fill it about full instead of filling a large glass half full. Milk punch and egg-nog are served where a person needs considerable nourishment; also where a patient needs a stimulant. Sometimes he needs more than simple nourishment and the egg and milk together make a very concentrated form of food. It can be made with the whole egg, or the yolk alone can be used. Mix the yolk with two teaspoonfuls of sugar; add one cupful of good milk, either warm or cold, and at once add one teaspoonful of brandy. Then beat this up lightly and quickly and turn into a glass.

In case of fever, anything cool assists the patient very much more than anything warm, and in such a case the cold egg-nog is very desirable. There are really very few forms of food to give a patient in case of fever. I can this evening only give you suggestions, and I am here going to suggest a few things to give under those circumstances.

The first form of egg-nog that I gave you was made with the yolk of an egg and a cup of milk and a teaspoonful of brandy. When the patient must have more albuminous food, the white and yolk must be given. The brandy will at once cook the egg—as soon as it reaches it. Eggs should be beaten stiff and dry. Egg-nog should be given slowly. If a patient drinks milk rapidly it will not be digested. When milk is given to a child or to a patient it should be taken slowly, not rapidly, in order to nourish the patient who takes it, and egg-nog should be taken in the same manner. The third form of fluid food is wine whey. It is often prescribed by physicians, but many people have not the faintest idea what the physician is talking about. Wine whey is very simple

to make. If you are in a hurry put a cupful of milk in a farina boiler and let it scald; add a quarter of a cup of wine, and let it stand until the albumen of the milk is curdled. When you strain it you have the whey without the curd. Very often physicians give the curd with the whey. The curd must then be chopped very fine or pressed through a sieve. Only a small portion should be given.

I shall now talk of convalescent food. The first is the ever-present beef tea, which can be changed from day to day. It can be flavored with a bay leaf or a little celery, or, when the physician will allow it, with a little tomato.

In preparing an egg for a patient it is best to use an egg cup, which obviates the necessity of experimenting with many eggs to obtain the proper consistency. Break the egg and put it into the cup until it is boiled to the proper consistency. Boiled eggs for patients should always be boiled soft; never hard. When you boil an egg hard the white, the albuminous portion of the egg, is coagulated, and the yolk often remains soft. That is not the proper way of preparing it. The yolk of the egg when soft is perhaps not very unpleasant to the taste, but the white of the egg improperly boiled is exceedingly unpalatable. The white and the yolk must be boiled alike. In boiling an egg for an invalid it should be put into an egg-cup so as to see the consistency.

Poached eggs may be given convalescents. In poaching an egg separato the yolk from the white. Boil the white first by slipping it on the water, and as soon as it begins to coagulate drop the yolk on to the white. Poached eggs are very pretty and digestible, and when perfectly prepared are very palatable. The white is not palatable when almost raw, and, as said before, though the yolk is not so bad when but partially cooked, it should have the proper consistency and be rightly prepared for the sick. Eggs should be served poached or boiled; in no other form.

Broiled beef pulp might be mentioned next. I do not mean Hamburg steak, but simply the pulp of beef broiled. It is very pleasant to the taste, and is prepared in this way: Take a pound of raw beef from the round, and with a sharp knife scrape across the grain until the pulp is scraped from the fibres; make it into small cakes and broil it over a hot fire. When thinly spread on delicate slices of bread it is very palatable.

Chicken, game, steaks and chops may be given convalescents. There is but one way of broiling steak for the sick, and that is the English way. Three chops are broiled, placed as an under, upper and middle slice, and the middle one only is given to the patient.

There are very few patients who cannot be given ice cream. People who are ill crave such things, and very often their cravings are a proper guide. I know a case in which ice cream saved a patient's life. Ice cream can be taken before anything else to a patient in a hospital. Rice may be given, but never unless it is cooked properly. Never give any one who is sick anything fried. Never fry a beef steak. Fried potatoes, it is perhaps needless to say, should never be given a sick person. Very often an invalid desires things that seem absurd, but they only seem absurd because we cannot put ourselves in the place of the patient. We have our ideas of how they should feel and not their ideas of how they do feel. Sometimes their desires may be just what the system needs.

Above all things serve the food daintily and prettily to a patient. His appetite is greatly influenced by the appearance and the manner in which the food is served, and nothing can be too good for our sick.—*Practical Medicine.*

Black Haw in Abortion.

After employing in several cases, I find that, contrary to the generally accepted opinion, this remedy does not always prevent miscarriage; may sometimes even occasion, or at least often accelerate it when already begun. The hæmostatic action of the drug, however, was constantly observed, but in every instance after the first day uterine contractions followed, favoring the commenced abortion. In three cases, directly after the administration of a dose, contraction of the external os was observed. I therefore believe that although Viburnum may occupy a prominent place in the treatment of diseases peculiar to females, it is not without a degree of danger where there is threatened abortion.

CURRENT LITERATURE REVIEWED.

IN CHARGE OF SAMUEL M. WILSON, M. D.

Meningitis as Found in Country Practice in Louisiana.[1]

There are four points in connection with meningitis which I desire to establish beyond question. These points are:

1st. That meningitis exists in our midst unrecognized, occurring at short intervals from time to time, and that many of the cases reported to have died with congestion, as a complication of malaria and other diseases, if they had been properly treated, would have survived to have proved by subsequent developments their meningeal origin.

2d. That the sporadic, when idiopathic, and the epidemic are probably but different forms of the same disease.

3d. That the plan of treatment that I have laid down is both scientific and successful.

4th. That the opium treatment is both unscientific and unsuccessful.

The necessity of discussing a disease in connection with its environment does not seem to be fully appreciated by the profession. Although I have been treating meningitis for seventeen years I have found difficulty in deciding which of my cases were of the epidemic and which of the sporadic variety. Why can not these cases represent one and the same disease under different circumstances, of course excluding the cases of secondary meningitis? Meningitis, under certain circumstances, seldom produces an eruption.

Seventeen years ago I encountered this disease and lost my patients as fast as I got them. I lost two in one day. Finally, with the assistance of a neighboring physician, I succeeded in saving two. Some time after this I succeeded in saving about half, and now to lose a case, which has survived the first shock, is the exception. It is my impression that few practitioners among us recognize this disease, or only recognize it when it is too late to save the patient, and it is that impression which has prompted this article. The premonitory symptoms often occur in time to enable the practitioner to ward off the disease entirely; or, failing in that, sometimes the disease is aborted. When I suspect the brain, I treat for that malady until I can make out the diagnosis; it is seldom the patient's life is risked by this plan. The question of diagnosis cannot be dwelt upon in this article, and the points untouched are sufficiently explained in the text books. The fretful condition of the patient, the constant headache, the gradually developing impairment of the mind, and the hallucinations, with a temperature too low to account for it by typhoid fever, the hydrocephalic cry and opisthotonos mark the course of the gradually developing variety. The high fever, spasms, or collapse coming on suddenly with serious impairment of the brain, fever continuing several days and subsiding, leaving the brain no better, and opisthotonos, sometimes marked by hydrocephalic cry, small and corded pulse, and temperature often falling below normal, mark the other form.

In my experience, pneumonia, occurring after the second week, very materially modifies the disease. The function of the brain is soon restored, the pneumonia runs a mild course, and when resolution sets in convalescence begins.

In the treatment of this malady, we must never let the symptoms divert our attention from the real condition of the patient. The indications are to relieve the nerve strain and to promote quiet sleep as a means to this end, to lessen inflammation by reducing the blood supply to the affected organs, to relieve hyperæsthesia and tetanic muscular contractions, to sustain the vital powers and to avoid all remedies that would irritate or impair the brain, promote stupor or impair digestion. After the acuteness of the attack begins to subside we must institute measures to repair the damage done. I fear this precaution is often overlooked or too long delayed.

Called to a patient with this disease, if a small child, I give calomel, then bromide of potassium, and, if the fever is high, some simple fever drops. If the child is large or the symptoms severe, I give chloral hydrate with the bromide, using Young's rule of dosage, and estimating the adult dose of chloral at fifteen grains and of bromide of potassium at twenty or thirty grains. I repeat every three hours, if necessary, and seldom go above the dose I have indicated. If there is severe headache, and it fails to yield to the above prescription I give ergot. Adult dose of ergot is ʒi of fluid extract. I have seen ergot promptly relieve spasms when all the usual remedies, including opium, had utterly failed. Whenever stupor comes on, at any stage of the disease, I use small blisters back of the ears. I have found these increase excitement if used too early. When, as is usually the case, there is spinal irritation, I use cold applications to the head and counter-irritation along the spine and back of the neck by croton oil diluted with turpentine.

It is very important to begin treatment for the effusion as early as possible, so as soon as the fever declines, or in cases where fever is not prominent, I begin at once with iodide of potassium, four grains, and tincture of belladonna eight to ten drops (to an adult), every four or six hours, I seldom begin the use of these before the fourth or fifth day of the disease.

Belladonnæ materially assists the bromide of potassium and the chloral in relieving pain and quieting the patient, and my results warrant its use with the iodide also. Under this treatment patients usually have good appetite and good digestion throughout the disease.

I never give quinine in this disease. When the brain symptoms begin to subside I sometimes give to an adult three doses daily of not more than two grains each of cinchonidia, given three hours apart for two days, when there is a malarial or decidedly periodical disturbance. I am satisfied that hundreds of children throughout the State are sacrificed every year by the indiscriminate use of quinine. Alcoholic stimulants often seem indicated, but are rarely tolerated in any form, and even carbonate of ammonium is often irritating to the brain.

1 Dr. I. T. Young. *New Orleans Medical and Surgical Journal*, October, 1895.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

Three Mistakes.

Mothers adhere rather persistently to three mistakes in feeding babies: (1) They give the food too concentrated. (2) They give it too frequently. (3) They give it in too great quantities. These are mistakes of the head, certainly not of the heart, for their great fear is that the baby will starve.—*San. Inspec.*

Food and Drink.

To the thoroughly healthy person who can supply himself with any kind of food desired, the natural demands of the appetite afford the safest guide for both quantity and quality. A mixed regimen of animal and vegetable food is the natural diet. In the most valuable kinds of food the carbohydrates (starch and sugar), fats, albuminous and inorganic substances are present in certain proportions Milk, bread, eggs, beef, mutton and fowl are rich in albumen. Certain vegetables, such as potatoes, beans and peas are valuable for their starch and albumen. The potato is practically starch, while the legumes are rich in albumen. The pulpy and succulent fruits and vegetables are valuable for their watery and saccharine juices.

The herbaceous substances, spinach, lettuce, celery and the sweet fruits may be eaten in a cooked or uncooked state, and are a valuable addition to a nutritious diet in supplying the salts of the vegetable acids.

On the average, less food is required in warm weather than in cold. The quantity much depends upon the amount of physical activity.

The average American eats most injudiciously. To even the moderately prosperous all the dainties of the world are within reach. The supply offered is out of proportion to the need. The dainties tempt the appetite, and, as a result of frequent yielding, many varieties of stomach disorders are developed, and the unhappy, morose, melancholy dyspeptic is created.

The dyspeptic is an example of excess,—excess in eating or drinking, or both. The points to be observed in eating are these: Adhere to a rational diet. Take food at regular intervals; eating between meals is a pernicious habit, giving the stomach no opportunity for rest. Eat slowly, masticate the food thoroughly, and, above all, do not overeat.

It is impossible to lay down iron-clad rules as to what shall and what shall not be eaten. The intelligent person learns from experience the foods which agree and disagree with him.

Water is the best beverage, and it is well to drink copiously of it between meals. Especially is it wise to take a glassful a couple of hours after eating. Avoid drinking ice-water before meals; it reduces the temperature of the stomach and retards digestion. All forms of alcoholic beverages are to be avoided. Even small amounts of alcohol prolong and hinder digestive processes, and increase the temperature of the body by diminishing the oxidizing power of the tissues.

Drink lemonade in moderation; drink koumiss, drink ice-cream soda, but drink it in moderation; the danger of it is in excessive indulgence. As is well known, the sweets produce fermentation. Drink milk if it agrees with you. Avoid fried foods and pastries; eat boiled or baked meats and fowl, soft-boiled or poached eggs, well-cooked and digestible vegetables, broiled and baked fish, cold light bread of wheat, Graham or entire wheat flour; all varieties of fresh vegetables, except radishes and cucumbers, plenty of fresh ripe fruit, but avoid fruit at all deteriorated in quality. Ices and ice-cream are delicious and nourishing articles of diet. But in eating them, moderation is ever the watchword.—*Annals of Hygiene.*

GYNECOLOGY.

Resuscitation of the Apparently Still-born.

Dr. Pinard, in the *Gas. Méd. de Paris*, 1895 (quoted in *Centralbl. f. Gynæcol.*), gives an account of 50 cases of apparently still-born infants; of these, 44 were restored, though 19 died later. In most cases, clearing the air-passages and insufflation of air, along with stimulation of the skin, were enough. In 6 cases, where these means failed, tractions on the tongue gave good results. Dr. Pinard recommends, at the same time, that the traction should be made with the fingers, not with a forceps.

Dr. Laborde relates a case observed by Dr. Guies, in which a child was restored by tractions on the tongue after a delivery with forceps. While the doctor was attending to the mother the child ceased breathing, but was again restored by rhythmical tractions on the tongue. Tarnier, Gueniot and others admit the ease with which this method may be carried out without the help of instruments, but still make use of insufflation of air by catheter. This, they maintain also, may act reflexly in exciting the respiratory reflexes.

NEWS AND MISCELLANY.

Holiday Excursion Rates on the B. & O.

In pursuance of its usual policy, the Baltimore & Ohio Railroad Co. will sell excursion tickets between all stations on its lines East of the Ohio River, for all trains December 21, 22, 53, 24, 25, 31 and January 1st, valid for return journey until January 7th, inclusive, at reduced rates.

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ORIGINAL ARTICLES.

UMBILICAL HERNIO-LAPAROTOMY AND HERNIO-ENTERECTOMY.

J. A. BAUGHMAN, M. D., NEOGA, ILL.

Mrs. E., housewife, aged forty, weight 235 pounds, had for four years suffered from a painful umbilical hernia of about the size of an orange. For relief from pain she sought a cure by operation. Assisted by Dr. G. T. Ragan, I cut down to the sac, through it and worked my way well into the abdomen. Before operation the hernia seemed entirely reducible, but, on opening the sac, the omental part of the protrusion was found adherent to the sac walls. This was torn loose, replaced, and the sac and redundant muscular tissues cut away. The whole umbilicus was cut out and the margins of the wound brought together with buried kangaroo tendon sutures, three in number, for the peritoneum, muscles and skins, the cobbler's stitch being used in the two deeper positions. The wound was hermetically sealed with iodoform collodium and cotton fibres; no drainage employed and in a week it was well healed with the minimum amount of inflammation.

Four and a half months after operation she returned with a knot the size of a hazel-nut, detectable but not visible, near the seat of the operation. I cut down upon it and found an epiplomiphalocele. The omentum was replaced, the very small sac cut away and sutured and sealed as before. The result, though quite recent, seems perfect.

Both operations were done under what anesthesia the endermic injection of a salt solution afforded.

During my second operation I found the tendon sutures used four and a half months previously still intact, but organized and incorporated with the living tissues. This kangaroo tendon suture is surely the best thing yet found in these operations. In operations on the bowels I have found the digestive fluids disintegrate them so quickly as to make them as unsafe as catgut.

The great interest and enthusiasm lately awakened in this section of the country by our Chicago confreres on intestinal surgery makes every case, successful or unsuccessful, by whomsoever performed, one of interest. A short report of an enterectomy in which a portion, eighteen inches of the small intestine, was excised, may not be devoid of interest in this connection.

August 8, 1893, I was called in con-

sultation with Dr. Bishop, of Ætna, Ill., to see Jacob L., farmer, aged forty-eight, weight 120 pounds, who was suffering from an incomplete right inguinal strangulated hernia of twenty-four hours duration. At the time of my arrival the patient was well under the influence of morphia, several doses of which had been administered during the previous night. All of the more conservative procedures, such as hot water, position, taxis, opium and full anesthesia, having failed to reduce the intestine, under the strictest antiseptic precautions, I cut

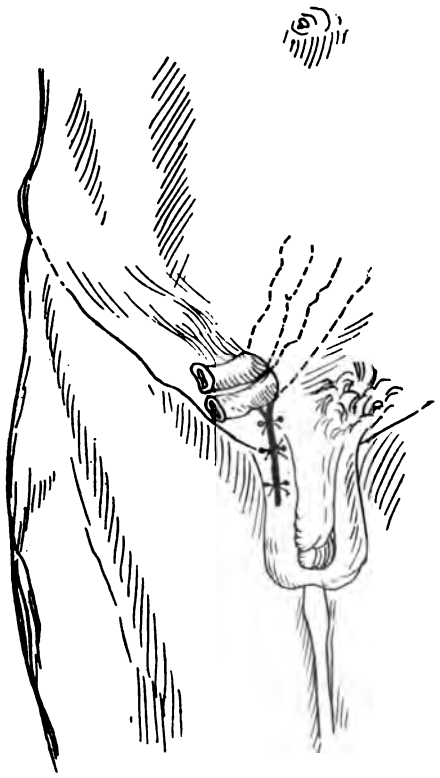

FIGURE 1.

directly down onto the seat of the trouble. As the gut and omentum rolled into view I was astonished that in twenty-four hours the integrity of the tissues could be so greatly injured. The strangulation was so complete, so absolute, that a wire would have failed to increase it. The gut, mesentery and omentum were black, hard and friable. I waited vainly for some time for evidences of a return of blood to the injured tissues. It seemed to me folly to return the damaged parts into the abdomen and I decided upon an artificial anus as the only means of saving the patient's life.

This operation in the minds of most surgeons, as in my own, may be relegated to the past, but follow me for a moment and criticise when I am done. I first relieved the stricture, then drew out the intestine until the uninjured ends were visible, cut out the gangrenous loop, giving the picture here represented.

With a few shallow stitches the intestines were fixed (Fig. 1) to the margins of the wound and the lower, or scrotal part of the incision was closed with a few interrupted sutures. The omentum was ligated, cut off and the stump fixed in the wound. I then placed abundance of antiseptic protective material around the wound to isolate it from the profuse discharge of chyme. The exclusion of the intestinal discharges from the wound itself was a difficult and trying task. However, with an intelligent and careful nurse this was accomplished and in about six days the intestine was well glued to the margin of the wound cutting off all avenues of communication with the peritoneal cavity.

Feeding the patient during this period was accomplished per os, per rectum and per intestine. The food swallowed underwent but very imperfect digestion before it was discharged from the proximal end of the gut. The bile and pancreatic juice, owing to the proximity of the opening to the stomach, were practically all lost. Rectal injections were used to a moderate extent. Into the distal end of the gut, where it protruded from the abdomen, three times daily with a fountain syringe we injected a pint of milk and beef peptonoids, supplementing each injection with two "pancreobilin" pills, manufactured by Parke, Davis & Co. This is the only case in which I ever saw an ideal need of such a pill, as here it was introduced into the alimentary tract just a little below the stomach.

The lower end of the bowel performed its functions very well and one would have been surprised to see how completely it performed digestion, independent of the digestive fluids of the upper end of the canal. When we wished to physic the patient we simply dropped a pill into the seat of the opening.

As soon as the intestine was well agglutinated to the margin of the abdominal opening, I set about to give the intestinal contents the proper direction through the canal. This was done, barring a few modifications, by the old Dupuytren method of sloughing out the

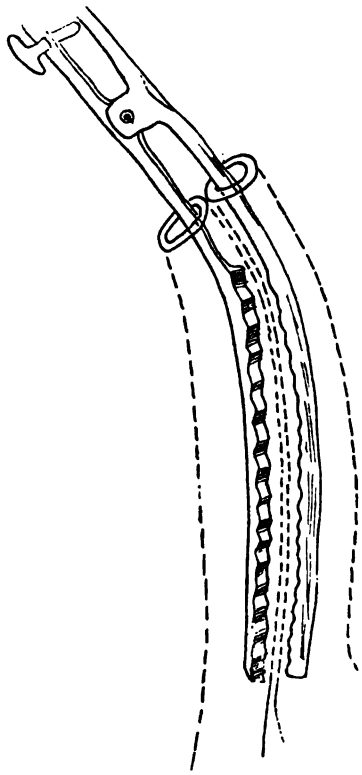

FIGURE 2.

septum or valve existing between the two ends of the intestine by the employment of a long-jawed forceps, known as an enterotome. The forceps is applied as here represented (Fig. 2), and tightened sufficiently to cause a pressure necrosis of the tissues within its grasp. The attendant inflammation serving to agglutinate with lymph the points of the intestine, which are brought into simple contact by the forceps. When the process is complete the intestinal contents have the chance to turn the angle and take their natural direction, as can be seen in Fig 3.

The forceps or enterotome which I used in this case was manufuctured in one of our village smithies, and differs from the regular instrument maker's in being lighter, having a shorter handle and being curved. The weight of this one even, was bitterly complained of by the patient. ' The shorter the handle the less it interferes with the dressings and bed clothing and the advantage of the curvature is at once apparent when you notice that the opening and bowel are seldom in a straight line, one with the other.

The force necessary to hold the forceps in position was surprisingly great, the peristaltic contortions of the intestine managing to extricate the organ from the grip of the instrument if not tightly set. It has been stated that an operation of this kind paralyzes the peristalsis of the bowel for the time being. That was not the fact in this case, the vermicular action being very marked throughout the whole history of the case. It is safe to say that those who are unfamiliar with intestinal surgery have but a poorly defined idea of the actual strength manifested by the muscular fibres of the small intestine.

In this case, after the direct route was reëstablished, the protuberant ends of the intestine were sheared off and the fresh edges of the opening brought together with stitches. The loss of intestine at this stage of the operation amounting to about eight inches makes the total loss eighteen inches. The union of the edges of the opening was not complete, leaving at this writing an opening in size less than that of the external auditory meatus. Several unsuccessful attempts have been made to close this, and probably the only means of accomplishing it would be an end-to-end anastomosis of the intestine; but by wearing a pad of soft cotton over the opening, the leakage is scarcely a drachm of fluid a day, and the man is loathe to submit to such a procedure. He is going about and declares he feels well. He performs much farm labor at present.

That the procedures adopted in this case were about the only ones that would have saved the patient's life, I believe for this reason: At his last meal before the strangulation he ate a hearty dinner of green corn, gnawing the grains from the cob. For two or three days after the operation hundreds of large, swollen, entire grains of this corn were expelled from the upper end of the bowel and I

HIGHER MEDICAL EDUCATION.

M. F. DeHART, M. D., Jersey City, N. J.

The article, "When may Gonorrhœal Patients Marry?" an abstract of which appeared in the Reporter of October 12, contains much truth, and deals with a subject of vital importance to the health and happiness of women. It says:

"This is the most frequent of diseases. Its very frequency has caused it to be considered a proper, or rather improper and therefore more delectable, subject of humor. It is a well known fact that a vast proportion of death-dealing diseases in women are due to gonorrhœa, contracted by men before marriage and supposed to have been cured, and not one man in a thousand who swears to cherish and guard the woman of his choice can do so without imperilling her life. It may make the patient blind in twenty-four hours, and is the cause of 80 per cent. of the blindness in children." A case is cited of a healthy young girl, "as chaste as ice, as pure as snow," who marries in good faith, and soon finds herself attacked by this disease, which, it is said, "soon kills her, for, though she lives, she is worse than dead, as she is not only unsexed, but also physically destroyed."

No reference is made to those cases, unpleasantly familiar to all physicians, in which this disease is contracted after marriage, which are equally dangerous and entirely without excuse or palliation.

It says that something forcible should be done to protect innocent women, and that the remedy is education, as legislation is found to be useless, and *that men should be taught that they should not marry while they can infect.* The remainder of the paper is devoted to telling men that they can be cured, and that this can be done without any pain to themselves or even interfering with their business, but that "were it associated with frightful agony and did work great business disturbance it would be better that men suffer a while than that they cause their wife's death, or worse than death."

There is no suggestion that education should aspire to lift men above the folly of exposing themselves to such diseases, which not only injure themselves, but render them liable to inflict life-long suffering and death on those who have loved and trusted them and blindness on their children.

Is it then too much to hope that in some far-off day a race of men will be evolved who will have acquired such ascendency over themselves that their lives will be controlled by reason; and that such a sense of justice will go hand in hand with this higher development, that they will refuse to get rid of burdens which naturally belong to them by transferring them to women, who are sufficiently handicapped in the race of life, without this cruel and unjust infliction?

Now that science is doing so much to prevent disease, and is searching so carefully for the causes which lead to untoward consequences, realizing that here is the greatest hope, can it not find something in medicine or surgery, or more probably in hygiene or ethics, which will prevent these misfortunes so ruinous to health and happiness, and which threaten to make marriage a failure?

Though science may do much to relieve the unfortunate situation by removing the offending organs and curing the disease, it cannot restore confidence or give back the charm which has fled forever. When women come to realize, as realize they must, the cause of their life-long invalidism and the reason why they must submit to such mutilation, it will be impossible for them, though they were angels, to forgive and forget their injuries or feel the old-time affection. There is a limit to what science or religion can accomplish.

Might not such instruction and warning as has been so successfully administered to women be helpful? If men were held to as rigid an accountability as women, and their sins called by their true names instead of being apologized

for and looked on as jokes, would it not help on a reform which it should be the high mission of all physicians to inaugurate? Would not such a public sentiment among men and in the medical profession help them to find a better way than through this "slough of despond," so that they might hope to escape the remorse and anguish which must fill the soul of any honorable man when he sees his innocent wife suffering the terrible consequences from his "wild oats," sown possibly in ignorance of the harvest?

These facts turn a revealing light on the causes of invalidism among women. The reasons formerly given for her deplorable physical, mental and moral deterioration as shown in her inability to fulfill her marital duties, and her reluctance to assume the responsibilities of maternity, were said to be tight lacing, lack of exercise and fresh air, imprudence during menstruation, attempts to prevent conception, and higher education.

These mild vices, of which she is, no doubt, ofttimes guilty seem insignificant as factors in her ill health, when compared with the ravages of syphilis and gonorrhœa; and her reluctance to become a mother may have a better excuse than mere vanity or frivolity. A syphilitic child, or one totally blind from gonorrhœa, might well make any sensible woman shrink from bestowing the doubtful blessing of life under such conditions, and explain her frantic and unwise attempts to escape from the perplexities of her situation.

Carlyle, in his "*Past and Present*," says: "It seems to be taken for granted that there is some 'thing' or handful of things which could be done, some act of Parliament which could be passed whereby the social malady were fairly routed. Brothers, I am sorry I have got no Morrisons Pill, Act of Parliament or remedial measure which men can swallow and then go on in their old courses, cleared of all miseries and mischiefs. Unluckily the Heavens themselves, in their rich pharmacopœia contain none such. There will be no *thing* done that will cure you. There will be a radical, universal alteration of your regimen and way of life take place, there will be a most agonizing divorce between you and your chimeras, luxuries and falsities take place; a most toilsome all but impossible return to Nature and her veracities and integrities take place that so the inner fountains of life may again begin like light fountains, to irradiate and purify your bloated, swollen, foul existence, drawing nigh as at present, to nameless death. Judge, if with such a diagnosis, any Morrison's Pill will be found. But the life-fountains within you once again set flowing, what immeasurable things whole sets and classes of things year after year, decade after decade and century after century will then be doable and done! Good Heavens! there will be a light in the inner heart of him and then a man, to discover what is just, what is commanded by the Most High, what must be done, were it never so impossible. The question asked of us is, 'How do we agree with God's Universe and the actual reality of things?' This universe has laws, and if we walk according to them the Law Maker will befriend us—if not, not. The thing for thee to do is, if possible, to cease to be a hollow sounding shell of hearsays, egoisms and purblind dilettantisms, and become, were it on an infinitely small scale, a faithful discerning soul. We must, if possible, resuscitate some soul, some conscience in us, exchange our dilettantisms for sincerities, our dead hearts of stone for living hearts of flesh."

Now that colleges are so earnestly striving for a higher medical education, would it not be well for them to include in their curriculum a short course from this earnest moral philosopher. Might it not help them to find a prophylactic which would avert some of the ills which all deplore; a fundamental principle which would serve as a guide out of this labyrinth, and rid us of this and many other kindred evils?

From such a far reaching reform might we not hope that prostitution, well described by historians as the blot on our civilization, would disappear as an enlightened and regenerated manhood could no longer require such an holocaust of victims?

It is said that the aspiration of one age is the code of the next, and that "the ideal life is in sober and practical truth, none other than man's normal life, as we shall one day know it."

COMMUNICATIONS.

THE CIGARETTE HABIT.*

J. C. MULHALL, M. D., St. Louis.

As a member of this and the Climatological Association, and as one who has smoked cigarettes for twenty-five years, I feel that I may speak with a certain amount of authority on this subject. "You, a throat doctor, and smoke cigarettes!" is a phrase that has finally wearied my ears; and, bubbling with mild wrath, "I rise to explain."

The pleasure and the penalty of this vice have never been rationally described, to my knowledge, other than by myself. This I did in a paper published in the *St. Louis Courier of Medicine* some eight years ago, and so little notice was given it that what I now say will be practically new.

A word as to the tobacco habit in general. Mankind pursues various methods in using it: by chewing it, by dipping, by cigar or pipe, by snuffing, and by cigarettes. There is a reason why each one pursues a particular plan. Early associations have much to do with the selection of the plan; but, apart from this, each method has its own particular pleasure. The man who both chews and smokes derives a different kind of satisfaction from each method, and he would derive a still different kind did he take snuff. Cigarette smokers may be divided into those who inhale the smoke and those who do not. The latter class is a very small one and the pleasure is the same, in a milder degree, as that of the cigar and pipe smoker, wherein the smoke chamber is the mouth. But all real devotees of the cigarette inhale. That is, with a quick inspiratory act, the smoke is drawn through the larynx into the trachea and, so far as I have been able by different experiments to learn, into the first division of the bronchial tubes; not, as the public believes, into the lungs proper. These inspirations are nearly always superficial, and the fact alone that there is a tidal and residual air would teach that the smoke does not reach beyond the bronchial tubes. Inhalation explains the pleasure of cigarette smoking. If the cigarette smoker did not *feel* the smoke in his larynx and windpipe, his pleasure would be gone. Every old cigarette inhaler will tell you this fact: that if he perchance smokes a brand of cigarette very much milder than that to which he has been accustomed, he will at once reject it, simply for the reason that larynx and trachea have been accustomed to a certain degree of irritation. The larynx and trachea have, so to speak, acquired a habit which rejects any unusual departure. For the same reason the inhaler rejects a brand of cigarettes much stronger than that to which he is accustomed, nor will he inhale the smoke of a cigar—vastly more irritating than that of any cigarette. The inhaler may change his cigarette for one more pleasing to his sense of flavor, provided always, however, that it satisfies his accustomed degree of laryngeal and tracheal irritation.

The pleasure in cigarette smoking, therefore, as compared with other tobacco habits, may be said to be a pleasurable irritation of the laryngeal and tracheal sensory branches of the pneumogastric nerve.

Another question frequently hurled at me in all these years has been, "What satisfaction can you get out of those weak little things?" The question means nicotine satisfaction. I once more rise to explain.

One absorbs nicotine in accordance with the amount of absorbent surface in contact with the column of smoke. In ordinary smoking the mouth alone is the smoke chamber; but when one inhales, one must add to the mouth the mucous

*Read before the American Laryngological Association, 1895.

membrane of the larynx, windpipe, and larger bronchi. There is, hence, roughly speaking, three times as much surface for the absorption of nicotine; and consequently, though a cigar contains vastly more nicotine, three-fourths of it is wasted, so far as the question of nicotine intoxication is concerned, as compared with the cigarette. Moreover, the cigarette smoker consumes two or three while the cigar smoker consumes one. The puny cigarette is, therefore, not so weak as it appears, and with this explanation begins to appear worthy of the newspaper term "deadly." Again, the cigar smoker, as compared with the cigarette smoker, is an infrequent consumer. We know that, with most drugs, if we divide an ordinary dose into ten equal parts and give one part every ten minutes until the ten parts are taken, we get a more powerful effect than if the whole were given at one dose. So it is with cigarettes. The dose of nicotine is smaller, but the doses are much more frequently repeated. I can smoke one large, strong cigar in the ordinary manner without evidence of nicotine intoxication, but I cannot smoke three cigarettes inhaled, in succession, without nausea or vertigo or a rapid pulse.

The evil effects of cigarette smoking may be divided into the local and constitutional. As compared with other tobacco habits, if the cigarette were composed of other ingredients than tobacco and paper, we should, as clinicians, be prepared to look for different signs and symptoms. So far as the constitutional effects are concerned, I wish to state, as one who has carefully watched this question for fifteen years, that they are absolutely the same as those of tobacco used in any other form. The evil symptoms are always those of nicotine poisoning—not those of any other drug. The only chemist of high standing who, to my knowledge, has analyzed cigarettes is Dr. Ledaux, who last winter presented to the Section in Jurispudence of the New York Academy of Medicine a report of the analysis of several popular brands of cigarettes. The dealers from whom he obtained the samples expressed their hope to him that he might find all kinds of narcotics in them. They explained that handling them was a nuisance to them; that all the profit accrued to the cigarette trust. He found absolutely no evidence of any other drug but nicotine in the tobacco, and in the paper a harmless quantity of cellulose.

The W. C. T. U. has endeavored to crush the cigarette evil by asserting that opium, *cannabis indica*, and other narcotics were present in cigarettes. Vice cannot be cured by misrepresentation. The only narcotic present is nicotine, and this is an evil or not according to a great many different circumstances. That chief circumstance when, without exception, it is always productive of great harm, is youth. Every medical man will admit, theoretically, that this should be a fact, and the few who, like myself, have made practical observations will tell you that they never saw a child (I mean by this term those who have not reached puberty) who used tobacco habitually whose health was not in some manner badly impared. What else would one expect the tender, growing nervous organism to do but wilt under the steady daily influence of a drug like nicotine? In adolescence—and practically this may be said to be from puberty until eighteen in females and twenty-one in males—the evil is not so great, but is still a great one; for, though the nervous crisis of puberty has been passed, the nervous system is still rapidly developing. The nerves are more resistant than in childhood, but, on the other hand, greater demands are correspondingly made upon them, either by the higher phases of education in one class or by the actual daily struggle for existence in the other. That the use of tobacco is a serious handicap in adolescence is proved by the investigations of others than myself. At several of our great universities it has been found by exact and scientific investigation that the percentage of winners in intellectual and athletic contests is considerably higher in the total abstainers from tobacco. Sammy, the best known newsboy of St. Louis, who by his wit and energy at the age of fourteen has accumulated quite a bank account, at my instigation made a series of unbiased observations concerning the newsboys of St. Louis. He found, other things being equal, that the selling capacity of the boy who used no tobacco was much greater than that of the boy who used tobacco either by chewing or by smoking.

It being admitted that the use of tobacco is a great evil in the young, it follows as a self-evident proposition that any method which encourages its use must be more reprehensible than a method which discourages its use, and the cigarette, above all other methods, presents this encouragement to the use of tobacco. In its mildness is concealed its very capacity for doing harm, for the reason that it teaches the use of tobacco. Every one knows the picture by Brown of a newsboy clinging to a lamp-post, limp, pallid and vomiting entitled, "His First Cigar." Had it been his first cigarette the picture would not have been true to Nature, for, unfortunately for our growing youth, the first cigarette does not induce this deathly nausea. Were this only the case there would be but one cigarette smoker in youth where there are now a hundred. The boy at first uses only the mouth as a smoke chamber, and as a cigarette is so mild he absorbs but a minute quantity of nicotine, insufficient for nausea. He gradually becomes able to consume more cigarettes, and quickly acquires nicotine tolerance. He is not allowed to pursue this method long. Invariably some other boy teaches him to inhale. At first it causes violent cough, and many would never repeat the attempt, but the taunts of the other boy are heard, and with the bravado of boyhood he perseveres. The larynx and windpipe soon tolerate the smoke, then demand it, and the boy is a full-fledged cigarette fiend.

The mildness of the cigarette explains also its fast-spreading use among young women, especially the leisure-class young ladies. As a rule they do not inhale, for at the first attempt the violent cough ensuing quenches ambition in this direction, and, unlike the youth or the boy, she is seldom encouraged to persevere. The fear of a tobacco tainted breath also curbs her habit. In young ladies who smoke cigarettes very moderately and who do not inhale I have never seen evidence of nicotine poisoning. Their immoderate use, even without inhalation, may, of course, afford sufficient nicotine to disturb the health. Apart from this, however, I join hands with the ladies of the W. C. T. U., who, in New England, have established anti-cigarette leagues among young ladies reformed of the habit, because of the pernicious example these young ladies may set to the youth and childhood which surround them.

Personally I may add that when I am appealed to on the same ground I freely admit the force of the argument. I, however, do not pose as a reformer or advocate, only as an expert.

The great evil of tobacco is its constitutional effect on the nervous system. The much lesser evil is local—namely, on the upper respiratory organs. My experience, like that of Morell Mackenzie, is that, provided there is no other factor, the use of tobacco provokes little or no disturbance to these organs. That it may aggravate a throat or nose trouble occasioned by other causes I will admit, or that by its constitutional depressing effect it may aggravate such trouble I will also admit; but, excluding all other causes and looking at tobacco purely in respect of its local effect, I must deny that it ever causes, as ordinarily used, throat disease worthy of the name. There are a few exceptions as there are to all laws in medicine. There are idiosyncrasies in regard to the use of tobacco, both with reference to the throat and the nervous system. They are rare. Tobacco, in its ordinary use, at most produces a slight hyperæmia or insignificant catarrh in the healthy throat. As used in cigarettes—that is, by inhalation—the smoke comes in contact with the laryngeal, tracheal and bronchial mucous membrane, and here produces in many the same trivial hyperæmia and secretion. This lattter is pearly and is ejected with a single gentle cough. I am unaware that I have this slight cough unless reminded by others. I have occasionally heard whistling râles in the bronchi of those who inhale very deeply and are immoderate smokers. Hyperæmia, not inflammation acute or chronic, is the sole disturbance. The effect in the larynx of the ordinary healthy man seems almost nil. Mario, the great tenor, inhaled cigarette smoke between the acts. I experience no vocal difficulty in delivering lectures. Maxwell, the murderer of Preller, was confined in the St. Louis jail for two years, during which time he inhaled an average of forty cigarettes a day. I secured the larynx and trachea of Maxwell, but

could discover no evidence of morbid change other than a fracture of the hyoid bone, caused by the hangman's rope.

Twenty years ago in this country this habit existed, but was unusual, probably because each consumer was compelled to make his own cigarettes. But since the American manufacturer, with his advertising genius, has scattered them over this country, ready made and very cheap, the habit has grown enormously. Nervous diseases and insanity are rapidly increasing in the American people we are assured by our own neurologists. Our nation was already noted as furnishing proportionately more neurasthenics than any other. If to such an inheritance American youth then adds the nerve-destroying nicotine habit which the cigarette so materially assists in spreading, there is grave reason to hope that the cry of reform may be echoed throughout our glorious country. There is no such instructor of the public as the press, and I trust that our newspapers will publish broadcast such information as this and kindred essays may give them on what is fast becoming a national vice in American youth—the cigarette habit.

THE TREATMENT OF THE NOSE AND THROAT DURING THE COURSE OF MEASLES AND SCARLET FEVER.

The objects to be accomplished are to thoroughly cleanse the mucous membrane, to render the secretions alkaline, to render inert the bacteria which may be present, and finally to lubricate the mucous membrane and protect it from too rapid evaporation. In clensing the nares, use a simple one-bulb *atomizer*, which is course and free, in order not to blow a lot of air into the nostrils, or it may be poured from a *teaspoon*, a *dropper*, or a Dessar's *nasal douche cup*. Cleansing solution: *Seiler's antiseptic tablet*, one tablet; *cocaine*, four grains, and *water* two ounces. Oily protective: liquid *albolene* or *hydrastol*, a preparation of hydrastis with oil of cinnamon and other aromatics, one ounce; *menthol*, *thymol* or *eucalyptol*, one grain; and *spirits of chloroform*, one-half drachm. One-half per cent. *cocaine* may be added by first dissolving it in *oleic acid* (one grain of alkaloid to the minim of the acid). For acute zymotic coryza of children: *eucalyptol*, six minims; *cocaine*, five grains; *oleic acid*, five minims; *chloroform*, one drachm, and *hydrastol*, two ounces; or *thymol*, two grains; *terebene*, five grains, and *hydrastol*, one ounce. For catarrhal laryngitis: *chloroform*, one-half drachm; *menthol*, five grains; *camphor*, ten grains, and *hydrastol*, enough to make one ounce:—spray down into the larynx several times daily. If a powder is desired as a protective, use the compound *stearate of zinc* combined with *boric acid*, ten per cent.; *menthol*, two per cent.; *cocaine*, four per cent., etc. If there is a croupous exudate, use *peroxide of hydrogen*, preceded by a spray of one per cent. solution of *cocaine*, and followed with an oily protective. For epistaxis, the application of *peroxide of hydrogen* is excellent. The inhalation of warm, medicated steam is valuable. and one-half to one drachm of any of the following mixtures may be added every two or three hours to the boiling water: *tar*, one ounce; and *alcohol*, four drachms. Or; *carbolic acid* and *cresoline*, of each to drachms; and *eucalyptol and balsam Peru*, of each four drachms; Or: *gum camphor*, one drachm; *menthol*, two drachms; *oil pine needles*, two drachms; *eucalyptol*, two drachms; and *oil of tar*, enough to make two ounces. Or: *eucalyptol* and *thymol*, of each one drachm; *carbolic acid* and *benzoic acid*, of each thirty grains; and *terebene*, enough to make two ounces—*Am. Med. Surg. Bull.*

THE MEDICAL AND SURGICAL REPORTER

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PHILADELPHIA, SATURDAY, DECEMBER 14, 1895.

CORRESPONDENCE.

TO THE EDITOR MEDICAL AND SURGICAL REPORTER:—

A very grave wrong is being perpetrated against the American public by a reprinter of one of the English competitors of the Funk & Wagnalls Standard Dictionary—a wrong that cannot be excused by the exigencies of commercial rivalry. As is well known, in all unabridged dictionaries it is necessary to give the definitions of certain indelicate words. Eighteen of these words (selected out of a vocabulary of over 300,000 terms in the Standard) have been collated and printed with their definitions by the reprinter of this English dictionary, and circulars containing them are being distributed among teachers, school trustees, and parents all through this country, stirring up a filthy agitation that will end, unless frowned down by the public press and other leaders of public opinion, in setting people of prurient minds and children everywhere to ransacking dictionaries for this class of words. One of these publications contains such outrageously unjust comments as the following:

"About two years ago the publishing house of Funk & Wagnalls brought into the world a monstrosity entitled the Standard Dictionary of the English Language."

"So far as relates to its collection of obscene, filthy, blasphemous, slang, and profane words, it has no counterpart in dictionaries of the English Language."

It is but fair to the press and scholars of England to say that the English critics have in no way seconded this unfair assault, but are unanimous in the most unqualified indorsement of the American work, the Standard Dictionary, expressing in many ways the same opinion as that of the St. James's Budget [weekly edition of the St. James's Gazette], London, which said:

"To say that it is perfect in form and scope is not extravagance of praise, and to say that it is the most valuable Dictionary of the English Language is but to repeat the obvious. The Standard Dictionary should be the pride of literary America as it is the admiration of literary England."

The utter insincerty of this attack on the Standard is seen in the fact that nearly every one of these eighteen words is in the English work which is published by this reprinter, and it contains other words so grossly indelicate and withal so rarely used as to have been excluded from the Standard and from nearly all the other dictionaries. Fifteen out of the eighteen words (and others of the same class) are, and

properly so, in the Century Dictionary, and they are to be found, with scarcely an exception, in every other reputable unabridged dictionary, and this class of words is invariably recorded in the leading dictionaries of all languages.

Since this gross attack has been made, we have submitted to Charles A. Dana and to a number of well-known educators the question whether we committed an error in admitting into the Standard this class of words. The answer has been without an exception, "You did not."

The fact is, extraordinary care was used by the editors of the Standard "to protect the language." Of the more than 500,000 words collected by the hundreds of readers employed to search all books of merit from Chaucer's time to the present, over *200,000 were excluded wholly from the vocabulary;* hence there was no need and no effort to pad the vocabulary. The rules of exclusion and inclusion were most carefully made and rigidly enforced. A most preplexing problem from beginning to end was how to reduce the vocabulary, not how to enlarge it. Compression was carried by many devices to the extremest degree. The editors who passed upon the admission of words numbered over one hundred of the best known writers and scholars in America and England. To accuse such men of "filthiness" is to do a wrong of the gravest degree. It is the business of a dictionary to record words, not to create, nor to destroy them; to answer inquirers concerning the spelling, pronunciation, and meaning of all words that are used to any considerable extent, not to obliterate those it does not fancy. Whether a word has a right to exist or not, the final arbiter is the people, not the dictionary. The dictionary, as says Trench, should be the inventory of the language, and, as says the Encyclopedia Britannica under the term DICTIONARY, it "should include all of the words of the language . . . . A complete and Standard Dictionary should make no choice. Words obsolete and newly coined, barbarous, vulgar, and effected, temporary, provincial, and local, belonging to peculiar classes, professions, pursuits, and trades, should all find their place—the only question being as to the evidence of their existence—not indeed, all received with equal honor and regard, but with their characteristics and defects duly noted and pointed out."

Improper or indelicate words, when it was found necessary to admit them into the Standard, were blacklisted as *low*, *vulgar*, *slang*, and printed in small type. It did not seem to the editors that an unabridged dictionary could go further without justly incurring blame.

To collect from such a work words of the class referred to and publish them is as great an outrage as to collect from the Bible the many indelicate words and passages to be found there, or those from Shakespeare (some of these eighteen words are found both in the Bible and in Shakespeare), and then to print and scatter abroad the collection, saying: "See what a foul book is the Bible; see what an obscene and blasphemous work is Shakespeare." The publication and distribution of these circulars is a gross assault upon public decency. An agent who attempts to exhibit such a printed circular surely should not be listened to for a moment; he is a public enemy, and should be turned from every decent door.

The old story will be remembered of a woman accosting Samuel Johnson, shortly after his dictionary had been published, with, "Dr. Johnson, I am so sorry that you put in your distionary the naughty words." "Madam," retorted the Doctor, "I am sorry that you have been looking for them."

Respectfully.

I. K. Funk.

New York.

Ink spots are always the most difficult to efface. Take up as much of the ink as possible with a spoon and blotting paper, and then use milk or clear water until it disappears, being careful not to extend the area of damage done by rubbing the ink into the adjacent material.

Benzin will remove paint from delicate fabrics; if it fails, turpentine must be used, and the mark which it leaves be effaced by alcohol. If in the process of removing stains the color departs from the material, it can generally be restored by dabbing with chloroform.

ABSTRACTS.

FOOD AND DRINK FOR THE SICK.*

J. HOBART EGBERT, M. D.

It is patent to careful observers that a sufficient knowledge is frequently wanting on the part of nurses and attendants, while physicians themselves are seldom well acquainted with the best methods of preparing food for the sick—even when they appreciate the kind of variety of aliment indicated or allowable in a given case. The receipts herein presented have been gathered from various sources—some, we believe, are now published for the first time—but all have been found worthy of favor after due trial in both hospital and private practice.

Variety in diet is frequently required in sickness as well as demanded in health; still, as is well known, the character and amount of food necessary for the best interests of the sick vary widely according to the nature of the disorder and the stage reached in the progress of the malady. Thus, in fevers and during the earlier periods of acute diseases--most of which involve derangement of the digestive apparatus—a diet of the blandest and most digestible sort is all-important.

Light, nutritious food, in a liquid form, may be administered to such patients quite frequently, but in small amounts. In such cases, solid food is ordinarily irritating to the stomach and loathsome to the patient, while small quantities of fluid food taken at short intervals will afford a sufficient amount of nutriment, which the irritable stomach, when thus approached, will accept and quietly appropriate to the nourishment of the body. In acute inflammatory rheumatism, meat in any form is to be avoided, while fruit, green vegetables, gruels, and vegetable soups are likely to prove beneficial. Hysterical subjects need a generous meat diet and should avoid spirituous and fermented liquors. Consumptives require a liberal diet and should partake freely of substances rich in fat, as meats and preparations of cream or milk. In diabetes the diet should be highly nourishing and varied, including all meats—excepting liver—and vegtables not rich in starch or sugar; while all starchy and saccharine foods, malt liquors, and wines are to be avoided. In diseases of the heart a dry, nourishing diet is most conducive to the comfort of the invalid, as liquids are absorbed slowly; the table should be generous, but stimulants and strong coffee should be excluded, as they readily excite the heart's action.

Before presenting the various receipts and formulas available for preparing special varieties of food and drink for the sick and infirm, we would call attention to the fact that so-called "dieting" can easily be carried to extremes, and that due nourishment may thus be withheld from bodies and organs in which vitality is running low. Referring to this subject, the late Professor Gross, of Philadelphia—to whose utterances the weight of authority has always been accorded—once said: "The diet of the sick room has slain its thousands and tens of thousands. Broths and slops and jellies and custards and ptisans are usually as disgusting as they are pernicious. Men worn out by disease and injury must have nutritious and concentrated food. The ordinary preparations for the sick are, in general, not only not nutritious, but insipid and flatulent. Animal soups are among the most efficient supporters of the exhausted system, and every medical man should know how to give directions for their preparation. The life of a man is his food. Solid articles are, of course, withheld in acute diseases in their earlier stages, but when the patient begins to convalesce, they are frequently borne with impunity and greatly pro-

*Dietetic and Hygienic Gazette.

mote recovery. All animal soups should be made of *lean* meat, and their nutritious properties, as well as their flavor, may be much increased by the addition of some vegetable substances, as rice or barley."

The following rules, suggested by Dr. Napheys, should always be observed in preparing, cooking, and serving food for the sick. All the utensils employed should be scrupulously clean. Never make a large quantity of one thing at a time. Serve everything in as tempting and elegant form as possible. Put only a small quantity of an article on a dish at a time. Keep milk and other delicacies on ice in warm weather. Never leave food about a sick room. Prevent as far as possible the odor of food in process of preparation from reaching the sick room. Never offer beef tea or broth with the smallest particle of fat or grease on it, nor milk that is sour, nor an egg that is bad, nor vegetables that are underdone.

Milk is justly held in high esteem as an article of diet for the sick. As a rule, it is agreeable to the palate and easy of digestion; still, in order to insure its highest usefulness, due management is necessary. A simple fresh milk diet is not only monotonous, but frequently occasions trouble. Biliousness may ensue, and gastric and intestinal irritation supervene; while the purity and innocuousness of fresh cow's milk may many times be justly questioned. Only milk recently drawn from the udder should be used in the sick room, and, on the score of safety, this should be boiled as soon as received and set in a cool place. As a nourishing beverage this boiled milk may be served either cold or luke-warm, and, for weak stomachs, may be greatly improved by the additio n— when administered — of an equal quantity of carbonated water.

Milk Gruel.—Scald one half pint of milk, add six raisins, and allow to stand five minutes. Take a tablespoonful of cornstarch and thoroughly mix with two tablespoonfuls of cold milk. Having placed the scalded milk in a farina boiler over the fire, add the cold milk and cornstarch, stirring the whole backward and forward until it begins to thicken; then add one ounce of sugar and let it cook one minute. Strain and place in molds in a cool place.

Milk Gruel with Oatmeal.—Fine oatmeal two tablespoonfuls; milk, one pint. Stir the oatmeal smoothly into the milk. Then stir it quickly into a pint of *boiling water* and boil a few minutes until thickened. Add a pinch of salt and sweeten with sugar.

Milk Jelly.—As a variation in milk diet the following is recommended. Heat one quart of milk with one pound of sugar, and when the sugar is dissolved continue the heat at a boiling temperature for about ten minutes. Then cool well and add, *slowly* stirring, a solution of one ounce of gelatin in a cupful of water. Next add the juice of three or four lemons. Pour into glasses and set in a cool place. It is necessary to have the milk quite cold before adding the other ingredients, else it will curdle.

Beef Tea.—This is best made by dissolving a proper amount of a reliable brand of beef extract in a cupful of boiling water, seasoning with salt, celery salt, and a little pepper, and serving hot.

Beef Juice.—Broil quickly a thick piece of fresh beef devoid of fat and bone; put in a meat press and squeeze out the juice. Season and serve full strength or diluted with hot water.

Chicken Broth.—Skin and chop up a small chicken, or half a large fowl, and boil it, bones and all, with a blade of mace or sprig of parsley and a crust of bread, in a quart of water, for an hour —skimming it from time to time. Strain through a course colander.

Mutton Broth.—Lean loin of mutton, exclusive of bone, one pound; water three pints. Boil gently till very tender, adding a little salt and onion according to taste. Pour off the broth in a basin, and when it is cool skim off all the fat. It can be warmed up as wanted. If barley or rice is added, as is desirable during recovery from sickness, it should be boiled separately until quite soft, and put in when the broth is heated for use.

Cutlet for Invalids.—One nice cutlet from the loin or neck of mutton; water, two teacupfuls; celery salt, a sufficient quantity, or one very small stick of green celery. Remove all fat from the cutlet and put in a stewpan with the other ingredients. When fresh celery is used it should be cut in thin slices before being added to the meat, and care must be taken *not to add too much.* Stew *very gently* for nearly two hours, adding salt and

pepper to taste, and from time to time skim off every particle of fat that may rise to the surface. If the water is allowed to boil fast the cutlet will be hard.

Eggs as articles of diet are cheap and nutritions; moreover, they are quite easily digested, if *not damaged by cooking.* An egg is a rather complete food in itself —containing, as it does, everything required for the development of a perfect chick. An average egg weighs a thousand grains, and is more nourishing than an equal weight of beefsteak. For invalids, eggs should be soft-boiled, or dropped from the shell in boiling water and served with crackers or toast.

Cup Custard.—One egg, one cup of milk, sugar, nutmeg, and salt to taste. Beat egg thoroughly in a teacup, add the milk and flavoring, mix, and bake about twenty minutes in an oven moderately heated. May be served cold or warm, with or without jelly.

Drinks, properly prepared, are quite as important to the sick room as food. Especially during the summer season, and when suffering from febrile conditions, will the value and advantage of cooling refrigerant drinks be appreciated; while mucilaginous demulcent fluids will be found soothing to irritable states of the alimentary canal and pulmonary and urinary systems.

Imperial Drink.—Dissolve from two to three drams of cream of tartar in a quart of boiling water, add the juice of lemon and a little lemon peel, and sweeten with sugar. When cold it may be taken freely as a cooling drink and diuretic. A valuable drink in threatened sunstroke and passive congestion of the brain.

Lemonade.—Pare thinly the rind of a lemon and cut the lemon into slices. Put the peel and sliced lemon into a jug with an ounce of white sugar, and pour over them one pint of boiling water. Cover the jug closely and digest until cold. Strain or pour off the liquid Citron may be used instead of lemon, and likewise furnishes a grateful and refreshing refrigerant beverage.

Milk Lemonade.—Sugar, one and a half pounds, dissolved in a quart of boiling water, together with half a pint of lemon juice and one and a half pints of milk. This makes a cooling, agreeable, nourishing beverage.

Linseed Tea.—Place in a jug one ounce of bruised linseed, two drams bruised licorice root, half ounce white sugar, and two tablespoonfuls of lemon juice, and pour over them one pint of boiling water. Cover lightly, and digest for three or four hours near a fire. Strain through linen before using. This makes a mucilaginous liquid possessing demulcent properties, and of special value in bronchial and urinary affections.

Barley Water with White of Egg.—Take a tablespoonful of coarse barley and wash well with cold water, rejecting the washings. Then boil for an hour or more with a pint and a half of clean water, in a covered vessel or saucepan. Add a pinch of salt, enough sugar to render palatable, and strain. To four or six ounces of barely water thus prepared add the white of one egg. The value of this preparation in gastro-intestinal inflammation and irritation is not easily overestimated. In the enterocolitis of very young infants its exclusive administration for thirty-six and forty-eight hours will often relieve when all other measures have failed.

When a patient cannot be raised from the bed without risk of exhaustion, a medicine tube or crockery feeder should be used, but the same appliance, or even one of the same appearance, should be used for administering both food and medicine. The patient's mouth should be kept clean and fresh, as should also all external surroundings.

The medical department of the University of Texas has some two hundred and twenty-five matriculates in this its fifth year of existence, and is one of the few high grade medical schools of the South that insists upon a three-year graded course.

The Faculty has recently had painted an excellent portrait of Dr. Thomas C. Thompson, which will be hung in the Library Building of the College. Dr. Thompson has been very active in perfecting the organization of the college, is a member of the Board of Regents of the University of Texas and chairman of the committee on the medical department. To him more than to any one else is due the present advanced stand taken by that college.

HERBERT SPENCER ON EVOLUTION.*

Mr. Darwin's doctrine of natural selection and the doctrine of organic evolution are, by most people, unhesitatingly supposed to be one and the same thing. Yet between there is a difference analogous to that between the theory of gravitation and the theory of the solar system; and just as the theory of the solar system, held up to the time of Newton, would have continued outstanding had Newton's generalization been disproved, so, were the theory of natural selection disproved, the theory of organic evolution would remain. Lord Salisbury, however, in common with the immense majority of men, assumes† that the hypothesis of organic evolution must stand or fall with its alleged causal agencies.

Absence of direct proof of natural selection is duly emphasized by Lord Salisbury. He says: "No man or succession of men have ever observed the whole process in any single case, and certainly no man has recorded the observation." Supposing the two hypotheses—special creation and evolution by natural selection—are to be tested by the directly observed facts assigned in their support, then, if the hypothesis of evolution by natural selection is to be rejected because there are no directly observed facts which prove it, the hypothesis of special creation must be rejected for the same reason. Nobody has seen a species evolved and nobody has seen a species created.

But now from the question of direct evidence let us pass to the question of indirect evidence. Recent discoveries, especially those which show by intermediate forms that the bird-type is derived from the reptile-type, and those which show that, beginning with the four-toed *Orohippus* of the Eocene strata, we ascend in later strata, through *Mesohippus*, *Miohippus*, *Protohippus*, and *Pliohippus*, up to the modern horse, have given strong support to the hypothesis of evolution; support so strong that Professor Huxley, who had up to the time he saw Professor Marsh's fossils made reservations in his acceptance of the hypothesis, thereafter accepted it without reserve. Not only do fossils furnish in this and other cases the lines of linear ascent to existing forms, but they simultaneously disclose a general fact of great significance—the fact that early types of creatures in any class display the commonest or most general traits of structure, and that later types of the same class are more specialized in this or that direction. The truths of classification, again, have a kindred meaning.

The lesson taught by the facts of distribution in time, is also taught by the facts of distribution in space. In various regions there are alliances between the present fauna and the past fauna found fossil: though different they are near akin. Once more there are the facts of embryology. In various ways these tell us with endless repetition the same story. If we accept the hypothesis of evolution, the strange transformations undergone by a developing embryo become intelligible, though otherwise unintelligible. Every superior animal commences as a nucleated cell, a form common to the smallest and simplest creatures, the *Protozoa*. In each great class of *Metazoa*, further development of each higher type is accompanied by a "recapitulation" of traits distinctive of lower types. Marvelous as is this repetition of traits belonging to lower types, rudely indicated, it is quite congruous with the hypothesis of evolution—implies a kind of transcendental heredity. On the other hand, the hypothesis of design furnishes no explanation, but presents an insurmountable difficulty. With which evidence may be joined the evidence furnished by rudimentary organs, which are full of meaning on the evolution hypothesis, but worse than meaningless in the special-creation hypothesis.

But these four great groups of facts, suggesting in different ways the same history, stand thus far without assigned cause. How come these progressive modifications to have taken place? and why are the modified forms connected

* *Nineteenth Century*, November. Condensed for *Public Opinion*.

†Inaugural Address to the British Association, 1894. See *Public Opinion*, volume xvii, page 554.

with one another in the ways shown alike by palæontology, by classification, by distribution, and by embryology? The reply is that we need only look around to see everywhere at work a general cause which, if it has been at work throughout all time, yields an explanation. Take any plant or animal and expose it to a new set of circumstances (circumstances not so unlike its previous ones as to prove fatal) and it begins to change; and the change is one which eventually adapts it to the new conditions. Here the argument requires us only to recognize the truth that in some way the organization is moulded to the new conditions.

Thus we have four great groups of observed facts (or five if we include those concerning rudimentary organs) all suggesting the same history, all converging to the same conclusion. On these mutually-verifying sets of evidences the hypothesis of evolution stands by itself, quite apart from any conclusions respecting its special causes. And now, having contemplated the observed facts which indirectly support the hypothesis of evolution, let us ask for the observed facts which indirectly support the alternative hypothesis. There are none. Neither in the air, nor on the earth, nor in the water, do we find anything implying special creation. Nay, indeed, not only do we see no facts favoring the supposition, but we see a world of facts conflicting with it. The idea of a special creation, when brought distinctly before us by alleged cases, is too absurd to be entertained.

Let us now consider whether, in the absence of observed facts proving the production of a species by natural selection, we have warrant for the theory of natural selection. Heredity, otherwise manifest, being clearly proved by the experience of breeders, survival of the fittest necessarily implies that those individuals which have structures best adapted to their environments, will, on the average, have better adapted posterity than the rest; and that so the fitness to the environment will be maintained. A further unavoidable corollary is that if the habitat changes in character, or if there occurs a migration to another habitat, the most unfitted will disappear in a greater proportion than the least unfitted; and that from destruction of the most unfitted in successive generations, there will result a continually-diminished unfitness to the new habitat, until there is reached a fitness for it. These are inferences which it is impossible to escape.

The great length of time required for the production of species by the evolutionary process, is supposed by Lord Salisbury to furnish a reason for disbelief. In support of his argument he cites Lord Kelvin's conclusion that life cannot have existed on the earth more than a hundred million years. Suppressing criticism, let us accept in full the hundred million years, and see what comes of it. Lord Salisbury invites us to reflect on "the prodigious change" required to transform his hypothetical jelly-fish into a man. He appears never to have reflected upon "the prodigious change" which in a few months transforms the human ovum into an infant.

The nine months of human gestation, more exactly stated, is 280 days, that is 6,720 hours or 403,200 minutes. Thus, then the total change from the nucleated cell constituting the human ovum to the developed structure of the infant just born, is divisible into 403,200 changes each occupying a minute. No one of these changes is appreciable by the naked eye, or even by a micrometer. Turn now to the other member of the comparison. To compare the two sets of changes we divide 100,000,000 years by 403,200. What is the result? We get nearly 250 years as the interval available for an amount of change equal to that which the fœtus undergoes in a minute. Another way of presenting the facts yields results still more striking. We may fitly, contemplating the whole series, take a year as the equivalent for a generation. If so, it follows that to achieve the transformation of the *Protozoon* into Man, it requires only that in the space of 250 generations the change shall be as great as that which the human fœtus undergoes in a minute; or, otherwise stating the fact, it requires that each generation shall differ from the last by as much as the fœtus differs from itself after an interval of a fourth of a second.

One more misconception embodied in Lord Salisbury's address remains to be

noted—not a misconception peculiar to himself, but one which men at large entertain. Apparently Lord Salisbury thinks evolution is concerned only with animals and plants. It is difficult to believe that, well acquainted as he is with the science of the day, he really means that which his words imply. The cosmos as a whole and in all its parts has reached its present state either supernaturally or, naturally; and if naturally then not living things only but all other things have come naturally to be what they are. A doctrine which alleges evolution for the animate world and assumes creation of the inanimate world is absurd. Evolution, if alleged at all, must be alleged as coextensive with all existence—save that which is undergoing the reverse process of dissolution.

This is not the place in which to explain and illustrate this universal law of transformation and these universal causes of transformation. Here I am concerned merely to indicate their scope, and to say that the doctrine of evolution, rightly conceived, has for its subject-matter not the changes exhibited by the organic world only, but also the changes which went on during an enormous period before life began, and the changes which have gone on since life rose to its highest form, and Man, passing into the associated state, gave origin to the endlessly varied products of social life. It has for its subject-matter the entire cosmic process, from nebular condensation down to the development of picture records into written language, or the formation of local dialects.

How utterly different the popular conception of evolution is from evolution as rightly conceived will now be manifest. The prevailing belief is doubly erroneous—contains an error within an error. The theory of natural selection is wrongly supposed to be identical with the theory of organic evolution; and the theory of organic evolution is wrongly supposed to be identical with the theory of evolution at large. In current thought the entire transformation is included in one part of it, and that part of it is included in one of its factors. From his place of vantage Lord Salisbury might have done much to dissipate these delusions; but, unhappily, both his language and his arguments have tended to do the reverse.

Stains and Their Removal.

It is perhaps hardly necessary to say that stains should be treated as speedily as possible after their first appearance. When once dry they are more difficult to remove, requiring both time and perseverance. Paint should be instantly wiped off; grease on wood, stone or carpet should be congealed before it has time to penetrate, by throwing cold water over it. Tea, coffee, ink, wine, and fruit stains will disappear in a quarter of time if they can be attended to while wet. Spots on colored material must not be rubbed, but dabbed over and over again until they disappear. Rubbing roughens the surface and often leaves a whitened circle almost as unsightly as the original stain. The dabbing is best done by covering a finger with an old handkerchief frequently changed, and great care should be taken to confine the operation to the area of the stain itself, and not to extend the damage by damping and dabbing the surrounding material. In the treatment of stains, to know what you mean to do, and to do it quickly and neatly, is more than half the battle. We will take stains on white washing materials first.

For acids, tie up a bit of washing soda in the stained part, make a lather of soap and cold soft water, immerse the linen, and boil until the spot disappears.

For anilins, wet with acetic acid, apply diluted chloride of lime, and wash out carefully.

Apple and pear stains may be removed by soaking in paraffin for a few hours before washing.

Blood, if fresh, is removed by soaking for twelve hours, in cold water, then washing in tepid water. If the mark still remains, cover it with a paste made of cold water and starch, and expose to the sun for a day or two. Old stains require iodide of potassium diluted with four times its weight of water.

For coffee and chocolate, pour soft boiling water through the stains, and while wet hold in the fumes of burning sulphur.

Ink requires milk for its removal; the spot should be soaked and gently rubbed. A fresh stain will disappear quickly, but an old one may need soaking in milk for twelve hours.

Grass stains are removed by alcohol.

NEW VIEWS UPON THE PROPHYLAXIS AND TREATMENT OF DIPHTHERIA.*

S. SCHWARZ, M.D., CONSTANTINOPLE.

The doctrines upon the theoretical value and practical use of serum therapy in diphtheria, so enthusiastically received at the Budapest Congress, had already been subjected to investigation from many points of view. They also found ample discussion in two subsequent medical congresses, in all medico-scientific societies, and in a large number of literary reports. Up to the present time, however, all this controversy has not led to the conclusions so earnestly desired by all.

In the meantime the minds of physicians became more composed, the universal enthusiasm gradually subsided and gave place to more lively conviction, so that now—since these doctrines mark a significant advance in the treatment of diphtheria—we are no longer distant from the epoch in which this important question will be solved for the general weal. In order to hasten the advent of this period as much as possible, I deem it the duty of every physician to give publicity to whatever method of treatment with which favorable results have been obtained; for in this way alone can a simplified and easily applicable therapy in diphtheria be developed, and at the same time lead to a prophylaxis which will check the advance of this terrible malady.

It is far from my purpose to personally subject serumtherapy to any form of criticism, or to enter into a discussion of the passionate debates which, in great part, rested upon misunderstanding. I will confine myself to a short resumé of the present state of this method of therapy, and refer to a method of treatment given in my article "Zur Therapie der Diphtheritis" ("Internationale klin. Rundschau," No. 36, 1892), in order to suggest a combined method of treatment, which should reduce the mortality of diphtheria to a minimum.

Judging from the literature to date, it must be admitted that antitoxin has reduced the mortality to a considerable degree. Numerically, the percentage cannot be determined; it varies between 15 and 25, which, in comparison to the previous mortality of 62, is very gratifying. Statistical evidence that the mortality has even been reduced to 12 per cent. cannot be considered, for there can be no doubt that, in recent months, public excitement caused many mild cases to seek treatment in hospitals, and this contributed to a more favorable showing in the statistics. It is further settled that antitoxin exerts a destructive action upon the Loeffler bacillus only; on the other hand, it has no influence whatever upon the accompanying staphylococci and streptococci. If the injections are made upon the first or second day of the disease, there is some prospect of recovery. In mixed infection, the action is very problematical. The serum acts very slowly in favorable cases; the febrile decline, as well as the limitation and exfoliation of the membranes, does not begin until after the expiration of 48 hours. It has further been determined that children who, in consequence of the serum treatment, have survived the disease, again become affected with diphtheria a short time thereafter. It has also been observed that children, injected for purposes of immunization, have, nevertheless, developed diphtheria a few weeks subsequently. From these facts it is plain that the serum does not render the human body immune, or, at least, that the possibly originated immunity is of but a transitory nature. In many cases the injections are followed by cutaneous eruptions, which, however, do not exert a pernicious effect upon the general condition. The albuminuria is not benefited by the serum; indeed, in many instances, the latter is said to have produced violent nephritis.

Regarding my method of treatment, its application was begun upon the basis of theoretical principles, and from the

*Amer. Med.-Surg. Bul., Nov., 1895.

standpoint of the practicing physician. Years before Loeffler discovered the specific cause of diphtheria, I looked upon this disease as due to a micro-organism, because of its infectious nature. I therefore endeavored to find a medicament which would destroy these parasites in loco without working injury to the organism, even after long administration. At the same time I sought to administer the medicament to the child in a manner calculated not to increase the eo ipso weakened action of the heart.

Personal experience with application by means of swabbing, syringing, and irrigation led me to abandon these procedures. These can only be carried out on very docile or older children; in fully 80 per cent. of the children it is almost impossible to employ them, unless one possesses extraordinary skill, born of years of practice. The parents or nurses exhaust themselves and the sick child, and, as a rule, injure the palate, cheeks or tongue. These points of injury are shortly afterward found covered with diphtheritic membrane, and they form new foci of infection, which hasten the absorption of toxins and death. Aside from this very difficult method of treatment, I was also unable to find any liquid medicament which was capable of destroying the microbes within a few hours. Sublimate is the only certain remedy; but, unfortunately, it cannot be used if it is desired not to injure the organism. Liquor ferri is also of value, but it causes so much pain that, as even its advocates admit, such a method of therapy must be considered barbaric. Furthermore, the too frequent employment of swabbing, viz., every one-half to two hours, is a serious objection. When it is considered how depressed and weak the children are after a single swabbing, the necessity of avoiding the frequent production of this condition in the case of a child with a weak heart is at once apparent. I am convinced that no small number of the fatal cases of diphtheria in children are directly referable to exhaustion produced by swabbings. What vital energy is not consumed by the toxins is used up by the torture of the swabbings.

After I had convinced myself of the inappropriate and directly injurious effects of swabbings, I resorted to the use of pulverized medicaments in the form of insufflations; and up to the present this method of treatment has acted most favorably, not only in my own cases, but also in those of many of my colleagues. By means of insufflations much can be attained: (1) The vital powers of the child are not taxed to any significant degree, for the insufflation lasts but a few seconds, and is only employed at intervals of four hours; (2) even though the powder is not applied directly to the infected locality, it mixes with the saliva, and, through the movements of chewing and swallowing, reaches the membranes, where it remains adherent for some time, is gradually dissolved, and, in fluid form, enters the deepest lacunæ of the tonsils, which it disinfects; (3) the whole oral cavity, where innumerable microbes reside, is likewise disinfected; (4) the manipulations are so simple that anyone can carry them out with ease.

There are those who object to the use of insufflation on the ground that a portion of the powder may enter the larynx and give rise to phenomena of suffocation; but the opponents seem to have forgotten that even insoluble powder (tannin) is blown directly into the larynx with beneficial results. For each insufflation I use a long paper tube, which is burned immediately after use, to avoid any further infection. The powder is placed in one end of the tube, and, after the tongue has been depressed by aid of a spoon, is deposited in the throat by blowing through the opposite end.

After I had successively tried the most varied antiseptic powders, I decided upon flowers of sulphur, which was of very great service to me, though not entirely satisfactory.

My own experience[1] with the non-injurious effects of the sozoiodol preparations, as well as the publication of Langgaard[2] on the bactericidal action of sozoiodol upon the pyogenic cocci, and those of Luebbert[3] upon the staphylococcus aureus and the pyocyaneus, and anthrax bacilli, led me to employ these preparations in diphtheria. From the very first I was most agreeably surprised to find my presuppositions confirmed.

As already stated, in the therapy of

[1] Revue medico-pharmaceutique, 1889, No. 7: "Sur l'Action therapeutique du Sozojodole et ses Sels."
[2] Therapeutische Monathefte, 1888, No. 9.
[3] Fortschritte der Medicine, 1889, Nos. 22 and 23.

diphtheria I directed my attention to local disinfection of the effected parts by prolonged action upon the latter of the anti-bacterial substance. This can only be accomplished by means of insufflation and the preservation of the patient's strength, which I sustain partly by the use of tonics, partly by merciful treatment. In children under two years I insufflate the little patients every four hours, for example: Natrii sozoiodolici, 3.0 gme.; flor. sulph., 6.0; saccharini, 1.0.

In children from two to four years I use natrii sozoiodolici and flor. sulph., equal parts, with a little saccharin; and in children over four years, natrii sozoiodolici, in fine powder, rubbed up with same saccharin. In addition, they receive every hour a tablespoonful of a chlorate-of-potash solution 1–1.5 to 18, in order to neutralize in the stomach portions of membranes which may have been swallowed; and at longer intervals tablespoonful doses of a decoction of cinchona with cognac or malaga. On the other hand, bouillon, containing the yolk of eggs, and milk with and without cognac mut be frequently administered. In order to prevent the development of post-diphtheretic paralysis, I begin at the very outset of the treatment the administration of extract of nux vomica, thrice daily, in doses appropriate to the age of the child.

Since the publication (l. c.) of my method of treatment three years ago, many colleagues have had opportunity to convince themselves of its value, and the numerous reports made to me by letters correspond in every particular with my own experience.

Among other things, Dr. Boehm, of Ratibor, wrote, February 16, 1894, that he blessed the hour when my paper came to his notice. In four months he had treated, according to my directions, twenty-one children, from one to thirteen years of age, with insufflations of sodium sozoiodolate combined with flowers of sulphur. Of these he lost but one case—one to which he was called when death from suffocation was near at hand. He is convinced that sodium sozoiodolate is a most excellent remedy in the treatment of diphtheria. The following he considers established: (1) The application of this remedy is a relatively agreeable one to the little patients, and is never frustrated by their resistance; (2) when applied at the proper time, the fever rapidly declines, the fetor ex ore disappears, the membranes become loosened and exfoliate within twenty-four to forty-eight hours, and the ulcerated surface, after exfoliation, is completely healed, etc.

Dr. Mordtmann, physician-in-chief of the German hospital of Constantinople, assures me that for a long time he delayed employing antitoxin in diphtheria, because, since he began to treat diphtheria with sozoiodol insufflations, it seemed to him to be superfluous. For scientific reasons in a few cases he used the serum, accompanied by local treatment with sodium sozoiodolate, and attributed the convalescence of the children more to the sozoiodole than to the serum. He placed at my disposal the histories of all his cases, which, however, I cannot publish for want of space.

It would lead me too far to refer to all the reports I have received, written in the same strain. This much is certain: that all of those colleagues who employed this method of treatment attained results similar to my own; that it is the only simple and practical one; and that in the reduction in mortality it exceeds by far all other methods of treatment. The total mortality, including the most severe and far advanced cases, as well as those living under bad hygienic conditions, never rose above 8 to 10 per cent. while in cases treated immediately after the appearance of the disease, it scarcely reached 2 to 3 per cent.

The course of the disease is as follows: After the first, sometimes after the second, insufflation, the temperature falls to 37 to 37.5° C., and even in the most sad cases it never goes above 38. The patients feel better and gladly take the nourishment and medicines offered them; their faces brighten, they play, and give the impression of convalescents. The fetor ex ore disappears entirely after 8 to 10 hours, and the membranes loosen and exfoliate within 24 to 48 hours, and leave healed ulcer surface behind. Complete cure is established after the expiration of 3 to 4 days. As a rule, I continue the insufflations for 8 to 10 days beyond this period.

As a precautionary measure, even

those childen in whom the nose is not infected are insufflated. The glandular swellings are visibly reduced. If no laryngeal affections are present, these swellings are almost never observed; if such are present in a mild form, they subside. After recovery from the disease, paralytic phenomena occur only in those patients who manifested severe symptoms of intoxication when treatment was begun. I have never observed relapses, nor have such been reported to me by others. I have never been able to detect any unfavorable action of the treatment upon the kidneys; on the contrary, with the disappearance of the general symptoms,[1] whatever albumen may have been present likewise subsided. Reformation of the membranes never occurs. A pernicious action of the medicament upon the body is wholly out of the question. Even in the most severe toxic symptoms a pronounced improvement takes place, and if the body possesses sufficient powers of resistance the severest cases recover. If the patients come under treatment during the first days of the disease, toxic symptoms rarely develop.

The favorable results which I and others obtained with this method of treatment induced me to employ it as a prophylactic. For example, in families in which a child becomes affected with diphtheria, and isolation of the other children is not possible, I insufflate those exposed, with the above-mentioned powder mixture several times a day. I do not recall ever having seen any of the children thus protected come down with the disease. Likewise, the adults, with whom the children must come in contact, are directed to use, in addition to the usual hygienic precautions, a 2-per cent. solution of sozoiodole as a gargle several times daily.

Since the healthy mouth cavity is inhabited by various species of micro-organisms, such as streptococcus, staphylococcus, Loeffler's bacillus, etc., which under well-known conditions, may give rise to serious toxic symptoms I employ for prophylactic purposes a 2-per cent. solution of sodium sozoiodolate as a mouth-wash in adults, and, in children, troches of 0.3 gme. of sodium sozoiodolate several times a day. Whether diphtheria has become a rarity in these families because of the hygienic regulations instituted, I will not discuss. This much, however, is settled: namely, that throat affections in general seldom occur in them. So much for my practical experiences.

Incited by my request (l. c.) to bacteriologists to test the bactericidal action of the sozoiodole preparations upon the Loeffler bacillus and the accompanying streptococci and staphylococci. Dr. Draeer, of Kœnigsberg, undertook this difficult task. I take advantage of this opportunity to express to him my warmest thanks for his efforts in this direction. His intelligently conducted experiments led to the following results, which I will give briefly, and refer the reader to the paper where further details may be found[4].

Draeer found that zinc and mercury sozoidolates, even in 2-per cent. solution, destroy the Loeffler bacillus in the shortest interval, while sodium sozoiodolate used in powder form does this only after prolonged action. Since both the first-mentioned preparations exert a toxic action upon the body the treatment of diphtheria with sodium sozoiodolate is preferable, because it is absolutely harmless and readily soluble. Even though the experiments of a Luebbert (l. c.) indicate that dogs bear well the administration by the stomach of large doses (0.5 gme. daily) of mercury sozoiodolate, and my own experience in the treatment of syphilis has shown that persons stand the same preparation in doses of 0.1 gme. daily for weeks without untoward effects, the disease being at the same time visibly influenced; still, I would hesitate to advise the employment of this preparation in diphtheria, especially when it must be intrusted to the hands of the inexperienced.

The experiments of Langgaard, Luebbert, Spierig,[5] and others sufficiently demonstrate the destructive action of the sozoiodol preparations upon the staphylococcus streptococcus, Loeffler's bacillus, etc., without however, giving any satisfactory explanation of the physi-

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[4] From the Hygienic Institute of Kœnigsberg, Prussia: "Ueber die Desinfectionskraft der Sozojodolsaure und verschiedener ihrer Salze gegenuber dem Loffler'schen Diphtheriebacillus," in the Deutsch. med. Woch., Nos. 27 and 28, 1894.

[5] Zeitschrift fur Hygiene und Infectionskrankheiten, XIII, No. 1, 1893: "Der Desinfectionswerth der Sozojodolpraparate nebst Bemerkungen uber die Technik der Prufungen der Antiseptica."

ological processes occurring in the human body during the employment of these salts. When the doctrines of immunity and the experiments instituted in this connection are closely considered, an explanation of this question is readily found. Pasteur taught us that when the attenuated cultures of a bacterial affection are injected into an animal which is susceptible to this disease, it is rendered immune to this disease. Then came Behring, who set up his theory of immunization: When a person survives an infectious disease, there are formed in his blood (blood-serum) antitoxins, which destroy the toxins of a new infection, whereby the person in question is made immune. The artificial production of the same process in the blood-serum of animals, and the immunization of the latter, were accomplished by Behring in various ways: (1) By injection of large quantities of attenuated cultures; (2) by injections of small quantities of very virulent cultures; (3) by addition of trichloride of iodine, or chloride of gold and soda, to the virulent bouillon cultures, and injection of these; (4) by first infecting the animal with diphtheria bacilli and, after the animal manifested severe symptoms of disease, injecting trichloride of iodine. In all of these experiments Behring obtained from those animals which had survived the disease a serum which conferred immunity upon other animals. Behring[6] has further experimentally proved: When healthy animals, which are susceptible to the diphtheria bacillus, are treated with peroxide of hydrogen, and subsequently inoculated with diphtheria bacilli, they are rendered immune to the action of this bacillus. Now, if Behring succeeded in obtaining an immunizing serum by addition to virulent cultures, or in existing infection, by injection of a medicament which killed the bacillus, or if he was able to reduce the susceptibility to diphtheria bacilli by previous treatment with peroxide of hydrogen, it is plain that any other medicament which is capable of attenuating or destroying the bacilli—be it through absorption by the mucous membrane, or from the stomach—likewise produces in the blood-serum antitoxins which must neutralize the toxins present in the body and thus effect a cure.

Since the antibacterial action of the sozoiodole preparations is experimentally and practically proved, I conceive the action of the same to be as follows: The bacilli brought in contact with the salt are partially weakened, partially destroyed, and in this state they enter the blood channels, where they produce antitoxins, which destroy the toxins subsequently introduced. In this manner the rapid subsidence of the fever and other toxic phenomena is readily explained. Furthermore, it is easy to understand why children who have survived diphtheria under this treatment, do not again become affected with diphtheria—they have for some time been rendered immune by the accumulation of antitoxins. The fact that children who occupy the same room as the patient, and have been treated with insufflations of sodium sozoiodolate as a prophylactic, do not take diphtheria, is as easily explained, because the sozoiodole salts exert an immunizing action upon the animal body wholly analogous to that of peroxide of hydrogen.

It would be of great practical value, from a prophylactic as well as a therapeutic point of view, if bacteriologists would institute the following experiments: (1) To immunize animals for a number of days with the various sozoiodole salts, by injections, by mouth, or by rectum, and then to infect with pure Loeffler bacilli, then with diphtheria bacilli and their products of metabolism; (2) infect with bacilli, and at the same time administer the different salts by mouth, etc.; (3) infect the animals and treat them at variable intervals thereafter with the sozoiodol salts; (4) test the blood-serum of these animals as to its immunizing power upon other animals. If such experiments succeed, a simple and almost certain method of therapy and prophylaxis will be established.

The publication of this paper has in no way been inspired by a desire to bring forward any preconceived opinions, or with a view of opposing the new method of treatment (antitoxin). In detailing my own experince and that of others with this method of treatment, my intention is simply to place, in the

[6] "Die Geschichte der Diphtherie mit besonderer Berucksichtigung der Immunitatslehre," by Prof. Dr. Behring; 1893.

hands of every colleague who lacks the necessary means of making a positive diagnosis of diphtheria, a method which when employed in either pure diphtheria or mixed infections, excels in effectiveness all previously employed medicaments. It is harmless, convenient, and applicable by all.

Let us consider the views and experiences of authorities. Behring says: "In the employment of antitoxin, the presence of the Loeffler bacillus must first be determined." Loffler states (Budapest Congress): "It is not infrequent for affections of the air-passages to occur which clinically simulate true diphtheria, but which are produced by other organisms—streptococci, staphylococci. They, like true diphtheria, may run a mild or a severe course. Only by bacteriological examination, can a differential diagnosis be made." According to the observations of Escherich, during an epidemic in Graz, the Loeffler bacillus was absent in one-third of all cases. Now, how shall a practicing physician, who lacks the means of making a differential diagnosis, act in the presence of a case clinically diagnosticated as diphtheria? The employment of serum alone in a case resembling diphtheria may end disastrously, because the serum acts only upon the Loeffler bacillus and leaves the activity of the streptocuccus and staphylococcus unaffected. Besides, a diagnosis made without the aid of bacteriological methods may injure the serumtherapy and cause many to abandon it.

In my opinion, diphtheria is not a disease which can be treated by one-sided methods; i. e., by a specific. This view seems to have induced Saltmann to employ general and local treatment, in addition to the serum. Therefore, it is desirable that those physicians who have fresh serum and every scientific means at their command should employ antitoxin in combination with insufflations of sodium sozoiodolate—a method of treatment which can only contribute to the benefit of humanity.

LIBRARY TABLE.

DUNGLISON'S DICTIONARY OF MEDICAL SCIENCE, 21ST EDITION WITH APPENDIX. Containing a full explanation of the various subjects and terms of Anatomy, Physiology, Medical Chemistry, Pharmacy, Pharmacology, Therapeutics, Medicine, Hygiene, Dietetics, Pathology, Surgery, Opthalmology, Otology, Laryngology, Dermatology, Gynecology, Obstetrics, Pediatrics, Medical Jurisprudence and Dentistry, etc., etc. By Robley Dunglison, M. D., LL. D. Late Professor of Institutes of Medicine in the Jefferson Medical College of Philadelphia Edited by Richard J. Dunglison, A. M., M. D. New (21st) edition, thoroughly revised, greatly enlarged and improved, with the Pronounciation, Accentuation, and Derivation of the terms. In one magnificent imperial octavo volume of 1225 pages. Cloth, $7.00; leather, $8.00. Thumb-letter index for quick use, 75 cents extra. Lea Brothers & Co., Publishers, Philadelphia, 1895.

Dunglison's Dictionary, for more than sixty years, has been a medical standard for the English-speaking race. It has passed through twenty-one editions, the most extensive revision being that of two years ago when the book was remodeled and forty-four thousand words added. Since this last revision, progress has enriched the terminology of the science with many new words and extensions of former meanings, and the appearance of the Appendix shows that both editor and publishers appreciate the necessity of keeping the great work always in the van.

Those concerned with medical science or cognate branches will find Dunglison a satisfactory authoritative guide to the derivation, definition and pronounciation of medical terms. It abounds in tables of value, such as Dosage, Antidotes for Poisoning etc., etc., and its articles on the various diseases deal with their clinical features and treatment. Its price is moderate in comparison with its intrinsic value, and no increase is made on account of the Appendix.

SAUNDERS' AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY. Edited by George M. Gould, A. M., M. D., assisted by eminent American physicians and teachers. Ready January, 1896. W. B. Saunders, Publisher, 925 Walnut Street, Philadelphia.

Notwithstanding the rapid multiplication of medical and surgical works, still these publications fail to meet fully the requirements of the general physician, inasmuch as he feels the need of something more than mere text-books of well-

known principles of medical science. Mr. Saunders has long been impressed with this fact, which is confirmed by the unanimity of expression from the profession at large, as indicated by advices from his large corps of canvassers.

This deficiency would best be met by current journalistic literature, but most practitioners have scant access to this almost unlimited source of information, and the busy practiser has but little time to search out in periodicals the many interesting cases, whose study would doubtless be of inestimable value in his practice. Therefore, a work which places before the physician in convenient form an epitomization of this literature by persons competent to pronounce upon the value of a discovery or of a method of treatment cannot but command the highest appreciation. It is this critical and judicial function that will be assumed by the editorial staff of the "American Year-Book of Medicine and Surgery."

It is the special purpose of the editor, whose experience peculiarly qualifies him for the preparation of this work, not only to review the contributions to American journals, but also the methods and discoveries reported in the leading medical journals of Europe, thus enlarging the survey and making the work characteristically international. These reviews will not simply be a series of undigested abstracts indiscriminately run together, nor will they be retrospective of "news" one or two years old, but the treatment presented will be synthetic and dogmatic, and will include only what is new. Moreover, through expert condensation by experienced writers these discussions will be comprised in a single volume.

The work will be replete with original and selected illustrations skilfully reproduced for the most part, in Mr. Saunders' own studios established for the purpose, thus insuring accuracy in delineation, affording efficient aids to a right comprehension of the text, and adding to the attractiveness of the volume.

"KEIL'S MEDICAL, PHARMACEUTICAL AND DENTAL DIRECTORY."

George Keil, Editor, Philadelphia, announces the early publication (fourth edition) of "Keil's Medical, Pharmaceutical and Dental Register-Directory and Intelligencer," for Pennsylvania, and New York, New Jersey, Maryland, Delaware and District of Columbia. Its list of National colleges, State hospitals, homes, dispensaries, societies, and post-office addresses of physicians, druggists and dentists, school of graduation and year, all the latest laws in these States, will be complete to date of issue as a personal canvas will be made for data. It is the only Directory published for above-named States, registering graduates of all schools, physicians, druggists and dentists, and imparting all information needed by the professions mentioned in their daily practice. No effort will be spared to make the Directory complete, and the information accurate and reliable in the minutest detail belonging to the domain of medical, pharmaceutical and dental professions. An experience of thirty years is a sufficient guarantee that all subjects will be properly treated in "Keil's Directory." The names in large cities, in addition to being in alphabetical order will be numerically arranged by streets, also an alphabetical list of names of the whole Directory, giving the page of each; these features will no doubt be appreciated.

THE PHYSICIANS VISITING LIST. (Lindsay & Blackiston's). Published annually for 45 years. Special improved edition for 1896.. Bound in strong leather covers, with pocket and pencil. Philadelphia, P. Blakiston, Son & Co., 1012 Walnut Street. 1895.

For 25 patients weekly, with special memorandum page, $1.00; 50, $1.25; 50, two vols., $2.00; 75, two vols., $2.00; 100, two vols., $2.25. Perpetual edition, without dates. No. 1. Containing space for over 1300 names, with blank page opposite each Visiting List page. Bound in red leather cover, with pocket and pencil, $1.25. No. 2. Same as No. 1. Containing space for 2600 names, with blank page opposite, $1.50. Monthly Edition, without dates. No. 1. Bound, seal leather. without flap or pencil, gilt edges, $.75; No. 2. Bound, seal leather, with tucks, pencil, etc., gilt edges, $1.00.

This well known Visiting List presents several improvements in the new Edition for 1896.

More space has been allowed for writing the names and to the "Memoranda Page;" a column has been added for the "Amount" of the weekly visits and a column for the "Ledger Page."

To do this without increasing the bulk or price, the reading matter and memoranda pages have been rearranged and simplified.

The Lists for 75 patients and 100 patients will also have special memoranda page as above, and hereafter will come in two volumes only, dated January to June, and July to December. While this makes a book better suited to the pocket, the chief advantage is that it does away with the risk of loosing the accounts of a whole year should the book be mislaid.

The publishers announce that before making these changes they have personally consulted a number of physicians who have used the book for many years, and have taken into consideration many suggestions made in letters from all parts of the country.

No Visiting List has been used to a greater ex-

tent or for so long a time as this. None is better suited to the work of the general physician, in keeping easily and systematically his business accounts and memoranda.

THE MEDICAL NEWS VISITING LIST for 1896. Weekly (dated, for thirty patients); Monthly (undated, for 120 patients per month); Perpetual (undated, for 30 patients weekly per year); and perpetual (undated, for 60 patients weekly per year). The first three styles contain 32 pages of data and 160 pages of blanks. The 60 patient Perpetual consists of 256 pages of blanks. Each style in one wallet-shaped book, with pocket, pencil and rubber. Seal Grain Leather, $1.25. Lea Brothers & Co., Philadelphia. 1895.

The Medical News Visiting List for 1896 is thoroughly revised and up to date in every respect. The text portion contains data useful for the physician and surgeon including an alphabetical Table of Diseases, the most approved remedies, and a Table of Doses. It also contains sections on Examination of Urine, Artificial Respiration, Incompatibles, Poisons and Antidotes, Diagnostic Table of Eruptive Fevers, and the Ligation of Arteries. The classified blanks are arranged to hold records of all kinds of professional work, with memoranda and accounts. Care has been bestowed upon the mechanical execution of the book. In quality of paper and in strength and finish of binding nothing seems wanting. When desired, a Thumb-letter Index is furnished, which will save its small cost (25 cents) in the economy of time effected during a year. The Visiting List adapts itself to any system of keeping professional accounts.

THE ARCHIVES OF PEDIATRICS will commence its thirteenth year with the January Number under the business management of E. B. Treat, Publisher, of New York. The "Archives" has been for twelve years the only journal in the English language devoted exclusively to "Diseases of Children," and has always maintained a high standard of excellence.

The new management propose several important changes in its make-up; increasing the text fifteen per cent. and enlarging its scope in every way. This will give room for the fuller contributions and additional collaborators who have been secured for the various departments, all of which give promise of a more successful era than has been known even in the already brilliant career of the journal.

The editorial management will be in the hands of Floyd M. Crandall, M. D., Adjunct Professor of Pediatrics, New York Polyclinic, and Chairman of Section on Pediatrics, New York Academy of Medicine.

The same publisher has in press for early publication the 1896 International Medical Annual, being the fourteenth yearly issue of this eminently useful work. Since the first issue of this one volume reference work, each year has witnessed marked improvements; and the prospectus of the forthcoming volume gives promise that it will surpass any of its predecessors. It will be the conjoint authorship of forty distinguished specialists, selected from the most eminent physicians and surgeons of America, England and the Continent. It will contain reports of the progress of medical science at home and abroad, together with a large number of original articles and reviews on subjects with which the several authors are especially associated. In short, the design of the book is, while not neglecting the specialist, to bring the general practitioner into direct communication with those who are advancing the science of medicine, so he may be furnished with all that is worthy of preservation, as reliable aids in his daily work. Illustrations in black and colors wil be consistently used wherever helpful in elucidating the text. Altogether it makes a most useful, if not absolutely indispensable, investment for the medical practitioner. The price will remain the same as previous issues, $2.75.

PEDIATRICS. Devoted to the diseases of children. Dillon Brown, M. D., New York, owner; Geo. A. Carpenter, M. D., London, editor. Editorial staff, Medicine: A. Jacobi M. D., New York; F. Forchheimer, M. D., Cincinnati. Surgery: H. R. Wharton, M. D., Philadelphia; F. S. Eve, F. R. C. S. Eng., London. Orthopedics: H. Ling Taylor, M. D., New York; F. R. Fischer, F. R. C. S. Eng., London. Gastro-enteric Disease: M. Manges, M. D., New York; J. Boas, M. D., Berlin. Laryngology, Wm. C. Glasgow, M. D., St. Louis; Mark Hovell, F. R. C. S. Ed., London. Therapeutics and Materia Medica: H. H. Rushby, M. D., New York; Dawson Williams, M. D., London. Teratologia: Egbert H. Grandin, M. D., New York. Dermatology, James Nevins Hyde, M. D., Chicago; Leslie Phillips, M. D., Birmingham. Neurology, Joseph Collins, M. D., New York; Wm. R. Gowers, M. D. London. Ophthalmology, Myles Standish, M. D., Boston; Wm. Arthur Brailey, M. D., London. This is a new publication which, judged from its initial number, promises well.

The AMERICAN JOURNAL OF SURGERY AND GYNECOLOGY has been removed to St. Louis, from which place the December number (Vol. VIII, No. 1) is just issued. Dr. Emory Lanphear, Professor of Surgery in the Woman's Medical College has been appointed editor-in-chief.

LITTELL'S LIVING AGE for 1896. The announcement of a reduction in the price of this

famous eclectic from eight dollars to six dollars a year will prove of more than usual interest to lovers of choice literature. Founded in 1844, it will soon enter its fifty-third year of a continuous and successful career seldom equaled.

This standard weekly is the oldest, as it is the best, concentration of choice periodical literature printed in this country. Those who desire a thorough compendium of all that is admirable and noteworthy in the literary world will be spared the trouble of wading through the sea of reviews and magazines published abroad; for they will find the essence of all compacted and concentrated here.

To those whose means are limited it must meet with especial favor, for it offers them what could not otherwise be obtained except by a large outlay. Intelligent readers who want to save time and money will find it invaluable.

The prospectus, printed in another column should be examined by all in selecting their periodicals for the new year. For the amount and quality of reading furnished, the new price makes *The Living Age* the cheapest as well as the best literary weekly in existence. Reduced clubbing rates with other periodicals offer still greater inducements, and to new subscribers remitting now for the year 1896 the intervening numbers of 1895 will be sent gratis. Littell & Co., Boston, are the publishers.

The subject of this month's character sketch in the *Review of Reviews* is Mr. Herbert Spencer. The sketch was written by an intimate friend whose identity is not disclosed. It is the most complete record of the great philosopher's life and achievements that has yet appeared. The writer tells us that "Social Statics" could not find a publisher in 1850, so that Mr. Spencer was obliged to print it at his own cost and sell it on commission. It took fourteen years to dispose of the edition of 750 copies. "Principles of Psychology" had a like experience, while Mr. Spencer was kept out of pocket for the capital sunk in these two ventures. It was the same with his other philosophical works at first and in the course of fifteen years Mr. Spencer lost more than £1,200. It was not till twenty-four years after he began to pub. lish that he was fully abreast of his losses, or, in other words, just where he had started financially. It is some consolation to know that in recent years Mr. Spencer's income has been fairly satisfactory.

Cosmopolitan.—Two very important facts in connection with the new era of magazines are illustrated in the December *Cosmopolitan*. Its fiction is by Stevenson, the last story written before his death, "Ouida," Sarah Grand, Zangwill, and the beginning of James Lane Allen's new Kentucky realistic story, "Butterflies." Probably no stronger array of fiction has ever been presented in any magazine—money could not buy better. Nor has any magazine ever had a larger number of really distinguished artists engaged upon the illustration of a single number. The reader might be puzzled to know how such a number can be made at the price of ten cents. But the magazine itself affords the solution. It contains 139 pages of advertising, which, as the publishers announce, is from $4,000 to $8,000 more net cash advertising than was ever before printed in any magizine, of any kind, and in any country. It breaks the world's record in the publishing business. Moreover, the cost of the artists and authors who appear in this number is divided amongst 400,000 copies, bringing the cost per copy proportionately low. *The Cosmopolitan* thinks that the ten cent magazine, bringing, as it does, the best in art and literature into all classes, is an educational movement second in importance only to that of the public schools.

Harpers Magazine for 1896.—A New Novel, by William Black will begin in the forthcoming December Number. The title of the story, *Briseis*, is taken from its heroine, a Greek maiden, first introduced to the reader among the hills of Aberdeenshire. It is a tale which has long occupied the thought of the novelist, and into which he has put some of his best work. It will be illustrated from drawings made in Scotland and London by Mr. W. T. Smedley.

A New Novel by George Du Maurier entitled *The Martian*, will be begun during the year, illustrated by the author. A new phase of the writer's artistic life will be presented, drawn from his early days at Antwerp; but again the lights and shadows of Paris and London life will engage the reader's interest.

The greatest piece of fiction which has appeared during the current year is the *Personal Recollections of Joan of Arc*, presented in the guise of a narrative by her page Louis De Conte. In its web the facts and main situaitons are historical, but the texture woven about this has been supplied by the author's fertile imagination. Thus far the story has been of the Maid's wonderful victories. The other side—her failure and martyrdom—remains to be told in future numbers of the Magazine. It is here that the author draws upon his deepest resources of humor and pathos. As a whole, the story will

stand as the only one adequate to the great argument on which rests what has been not inappropriately called the "New Cult of La Pucelle."

A novelette by Mark Twain under the title *Tom Sawyer, Detective*, will appear after the conclusion of Mr. Black's novel. This will be followed by a humorous novelette, *Two Mormons of Muddlety*, by Mr. Langdon Elwyn Mitchell, the scene of which is laid in West Virginia. Mark Twain's story will be illustrated by Mr. A. B. Frost.

Arrangements have been made for short stories of exceptional quality. Several will be contributed by Octave Thanet. *Evelina's Garden*, by Miss Mary E. Wilkins, a story of considerable length, will be given in a single number, illustrated. Julian Ralph's *Tales of Chinese Life*, the result of a special trip to China for a personal study of the types of character presented, will be continued, with vivid pictorial illustrations from drawings by Mr. C. D. Weldon. Some fresh *Sketches of New York Society*, of which one is published in the December Number, will be contributed by Mr. Brander Matthews, with illustrations by Mr. W. T. Smedley. Mr. Owen Wister will resume the delightful *Stories of Western Life*, which first won for him his reputation in this field, introducing old and familiar characters like Lin McLean and the Virginian.

The notable feature of American History in the magazine literature of the year will be a series of *Papers on George Washington*, by Professor Woodrow Wilson, to begin in the January Number, with illustrations by Mr. Howard Pyle. Professor Wilson will in this series present a new interpretation of that period which was at once the fruition of the English colonial culture of America and the beginning of a new nation.

Mr. Poultney Bigelow's *Struggle for German Liberty*, illustrated by Mr. R. Caton Woodville, will be continued through the winter. It is the first popular interpretation ever given of the rehabilitation of Germany through the uprising of the German people against the Napoleonic invasion, and in despite of their own weak and vacillating sovereign.

Two articles treating the Indian campaigns during President Washington's administration—*St. Clair's Defeat* and *Mad Anthony Wayne's Victory*—graphically illustrated, will be contributed by Mr. Theodore Roosevelt.

Contributions of historical and biographical interest will be Mr. George W. Smalley's *Personal Recollections*; papers on *Oddities and Celebrities of the British Parliament*, by Thomas Power O'Connor, M.P.; more of Mr. Howells's *Literary Reminiscences*, illustrated; three articles by Mr. Laurence Hutton on *Literary Landmarks of Italy*, illustrated; and a paper on *Menzel*, the great German painter, by Dr. Charles Waldstein, illustrated by the artist's own work, and in great part by pictures not hitherto engraved.

Dr. Andrew Wilson, of Edinburgh, will contribute papers on recent science in connection with health and disease. The first of these, entitled *The Battle of the Cells*, will appear in an early Number.

The Magazine will present, in the "Editor's Study," the bright and pointed comments of Mr. Charles Dudley Warner on current, social and other timely topics. In addition to this permanent feature the Magazine will have from time to time, as occasion demands, special articles on critical questions of the day, from writers of authority and experience.

Among the features of the Magazine during the coming year will be a series of articles by Mr. Caspar W. Whitney, describing his extraordinary trip on snow-shoes and with dog-sledge trains into the unexplored Barren Grounds of British America.

Mr. Whitney is the first white man who has penetrated these grounds in the winter time. The story of his life there, with the thermometer ranging between 50° and 70° below zero, of the starvation, the difficulties of travel in the fearful storms and the excitement of musk-ox hunting, renders the series of articles which begins in the December Number quite unparalleled.

Dr. Whitney's story will have the added interest of being illustrated from photographs taken by himself. Some of them will be interpreted in drawings by Frederic Remington, and others will be reproduced direct.

Dr. Howard Pyle will contribute two articles describing a trip on a canal-boat up the Hudson River and by the Champlain Canal to Lake Champlain. The trip was undertaken expressly for *Harper's Magazine*, and its picturesque features have furnished subjects for a series of very striking and beautiful drawings by the author to accompany his text.

Scribner's for Christmas.—Frank R. Stockton has a Christmas love story, which bears a characteristic title,—*The Staying Power of Sir Rohan.* Its illustrations are quaint and exactly suitable

A thrilling detective story by C. E. Carryll, entitled *The River Syndicate*, perhaps equalling Sherlock Holmes' best work. Illustrated.

Joel Chandler Harris' characteristic tale of a faithful slave—*The Colonel's Nigger-Dog.*

Other Christmas stories are *A White Blot*, by Henry Van Dyke, a poetic and imaginative tale of a picture (illustrated); *Heroism of Landers*, by A. S. Pier, (illustrated); and *Hopper's Old Man*, by R. C. V. Meyers.

Sentimental Tommy by J. M. Barrie. Those who have read (and who has not?) *The Little Minister* and *A Window in Thrums*, can anticipate what Mr. Barrie's *Sentimental Tommy* will be.

It is to be the chief serial in *Scribner's* for 1896, beginning in the January Number.

Two years for $4.50. *Scribner's Magazine* costs $3 00 a year, but new subscribers can have all the numbers for 1895 and a year's subscription for 1896 for $4.50.

Scribner's Magazine is going to be better next year than ever. It is going to have new features. Its publishers are not satisfied with past successes. It purposes to more thoroughly deserve the confidence of the reading public.

The History Serial—*Last Quarter Century in the United States*—will be continued. Just now it is approaching a period of absorbing interest to the present generation—the first administration of President Cleveland.

Scribner's Magazine ought to get careful consideration as a Christmas gift. The $4.50 offer ought to get double consideration. Charles Scribner's Sons, 153 Fifth Ave., New York.

CURRENT LITERATURE REVIEWED.

IN CHARGE OF SAMUEL M. WILSON, M. D.

Report of Ten Cases of Anterior Urethritis Treated in the Wards of the City Hospital by the Author's Method.[1]

Some years ago my attention was called to the rapid cure of cases of gonorrhœal ophthalmia in the city hospital by the constant application of ice-cloths, washing out the eye with a saturated solution of boric acid as often as necessary, and the instillation, once a day, of a two-per-cent solution of nitrate of silver, and immediately washing it away with saturated solution of boric acid. Accordingly, some five years ago, I resolved to attempt to discover the best method of applying the treatment of gonorrhœal ophthalmia to gonorrhœal urethritis.

Some Italian laborers with urethritis were treated closely after the methods employed for ophthalmia, with the exception of the ice-cloths. This consisted in injecting into the urethra, once daily, by means of a hand syringe, about two drachms of a ten-grain to the ounce solution of nitrate of silver, allowing it to escape almost immediately, and then injecting a saturated solution of boric acid. This solution of boric acid was also to be used at home after each act of micturition, the urethra being first washed out with warm water. This method worked well in some cases, but seemed too irritating in others. I therefore began using a solution of one grain to the ounce, and, this being of little service when used once daily, increased the strength by one grain daily, still using the boric acid as before. By this one grain progression, the strength of the solution could in some cases be increased to fifteen grains to the ounce without discomfort and with a beneficial result. Experience taught me, however, not to increase the strength beyond ten grains to the ounce. Although this method seemed to shorten the duration of attacks of urethritis, the results were less brilliant than I had hoped for. I substituted the boric acid by sulphate of zinc with better results, and finally used a modification of the injection of Ultzman: sulphate of zinc, alum and carbolic acid, of each one grain; glycerine, one drachm, and distilled water one ounce. The cases treated in this way were always those of anterior urethritis, and if posterior urethritis occurred during the treatment I immediately changed it for some other.

[1] Ramon Guiteras, M. D., *Therapeutic Gazette*, November 15, 1895.

A Protracted Case of Typhoid Fever: Some Features of Treatment.[2]

The history of this case is of interest chiefly because of the long duration of the illness. and because other measures had to be employed in place of cold baths. From the experience I have had I am convinced that if we could have given this patient cold baths the duration of the disease would have been shortened and the dangers to life, which were constantly present, averted. The patient's temperature did not become normal until seventy-three days after the beginning of the disease. I am aware that many cases are recorded which persisted for a longer period.

Prostration was pronounced from the first and was indicated by a weak pulse, by frequent syncopal attacks, by persistent coldness of the extremities, by the ready production of shock by the external application of cold, or the use of drugs to reduce temperature. The prostration and the anæmia were added to by the occurrence

[2] J. W. Musser, M. D., *University Medical Magazine*, November, 1895.

of a moderate hemorrhage from the bowels on the twenty-sixth day of the disease, and again on the following day. For a considerable period there was obstinate vomiting, requiring food and everything except champagne to be withheld from the twentieth to the twenty-sixth day. The bowels were constipated throughout the course of the disease, and an enema had to be given every second day. The specific eruption, enlarged and palpable spleen, and the hemorrhage rendered the diagnosis final.

Milk was given for a time in the quantities usually advised, but the amount had to be reduced; then it was rejected and cream substituted. Animal broths were refused. When the vomiting became pronounced the patient was fed by enema, but the hemorrhages forbade this for a time. The stimulant most relied on and which proved the most beneficial was coffee. At first two tablespoontuls could be taken hot and without cream or sugar, every two, three or four hours. Later larger amounts were given at longer intervals. Both champagne and whiskey were given at different periods, but during the period of greatest gastric disturbance champagne was the most acceptable. I particularly wish to refer to coffee, and urge its more frequent use in acute diseases. I am quite sure that it contributed to saving the life of this patient, and it appeared to have a good effect in preventing vomiting.

As cold applications caused extreme depression, I resorted to the use of inunctions of oil in order to reduce the temperature.

It had been my custom to use inunctions of olive oil in cases of protracted fever. Until superseded by baths, this use of the oil became a routine method of treatment in the medical wards of the hospital. After the inunctions the temperature would fall ½° or ¾° F., or perhaps a full degree, but notwithstanding the slight difference, the patients appeared more comfortable. They did not suffer apparently from the distressing effects of the heat, and would almost always fall into a sleep. The oil mitigated the effects of the fever, the inunctions allayed the perturbation, and I am quite sure contributed to the nutrition, or at least in some manner prevented the extreme waste and prostration that occur in protracted pyrexia.

When admitted the patient had only 3,500,000 red blood corpuscles per centimeter and the hemorrhages reduced this to 1,500,000. The pulse became more frequent, the respiration more rapid, breathlessness and fainting occurred frequently and the patient's extremities were cold and bloodless, and after exertion bluish. Inhalations of oxygen were given every hour during the periods of greatest depression, and later at intervals of every three or four hours. The good effects were pronounced.

Digitalis had to be abandoned on account of the irritable stomach, strychnia was of benefit but even small doses caused stiffness of the jaw. Cocaine in quarter-grain doses and carbolic acid in quarter-minim doses were given to allay vomiting and aromatic spirits of ammonia almost *ad libitum*. An idiosyncrasy against opium restricted its use to small doses, but given as small doses of deodorized tincture with tincture of cannabis indica it relieved restlessness. The patient was completely restored to health, but was unable to resume her occupation until after a long period of convalescence.

Intra-Uterine Rupture of the Anterior Abdominal Wall With Eventration In a Newly Born Child[3]

Paul describes the case of a woman who, two days previous to labor, slipped while walking and struck her abdomen against the sharp edge of a stone step. Although the mother showed no evidence of injury, the fœtal movements ceased. At birth the still-born child (congenitally syphilitic) was found to present a rupture of the anterior abdominal wall of a penetrating character, evidently the result of the maternal injury. Such a case becomes extremely important from a medico-legal standpoint. In spite of an exhaustive research through recent literature I have failed to find any other cases of this nature. Therefore I need not apoligize for reporting the following:

Mrs. H., a multipara has always given birth to children without special difficulty. The present pregnancy has been marked by great pain throughout its course, but she can recollect no falls nor injuries. On July 27th labor pains started, and before the midwife could be sent for, the child was born and struck the floor with some force. Some of the neighbors were instantly on the spot and found the child alive; but the intestines protruding through an abdominal rent. During the next few hours the gut was said to have become swollen. I was sent for and arrived several hours after the birth. I found a well nourished child with the evidences of marked vitality. A large mass of intestine protruded from a small abdominal opening and lay between the child's legs on a pillow. On closer examination I found the umbilical opening entirely closed and containing, as usual, the stump of the umbilical cord. About half an inch to the right, however, the intestine escaped through an opening not much larger than a silver quarter. This opening was somewhat ragged in character and along the right margin presented distinct adhesions to the gut. The left margin was free and permitted the withdrawal of more gut and the insertion of a finger into the peritoneal cavity. On raising the mass the genitals and anus were found absent. A space about the size of a half dollar and covered by mucous membrane extended from the pubes to the tip of the coccyx. To either side of this cloaca, which represented the extrophied bladder were small projections representing the ununited halves of the clitoris. The space was entirely distinct from the opening through which the bowel escaped.

The child lived twenty-five hours drinking sweetened water from a spoon, and apparently not suffering much. An autopsy was not permitted. I believe the eventration was intra-uterine because of the presence of distinct adhesions to one side of the gut and because there was considerable protrusion when the child was picked up.

3A. Brothers, B. S. M. D., *New York Medical Journal*, Dec. 7, 1895.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

Cure for Dandruff.

Suffering much inconvenience from dandruff, and having resorted to many advertised nostrums and other means for relief, among which were various alcoholic solutions of castor oil, and washing the scalp with solutions of borax and carbonate of potassa—which latter, although effectual for the relief from the dandruff, seemed to impair the vitality of the hair and cause it to become very sensibly thinner,—I was finally induced to try a preparation of an ounce of the flowers of sulphur in a quart of water, as follows, with the happiest results: The sulphur was repeatedly agitated in the water at intervals for a few hours, and the clear liquid then poured off; with this the head was saturated every morning. In a few weeks every trace of dandruff disappeared, and the hair became soft and glossy. After discontinuing the treatment for eighteen months there is no return of the disease.—*Louisville Medical Monthly.*

GYNECOLOGY.

The Preservation of the Perineum: A New Method.

Dr. M'Cartie contributes a long article on this subject to the *New York Medical Journal*, May, 1895. After explaining and condemning the old methods of "supporting the perineum," Dr. M'Cartie proceeds to describe the various methods advocated in the text-books of pushing forward the head under the pubic arch—such as pressure applied on the head just in front of the sacrosciatic ligaments, or by pressing it forward with a thumb or fingers in the rectum, or just in front of the coccyx. Along with these methods, the various authors advocate pressure on the head itself to retard the passage when this occurs too suddenly or spasmodically. Other authors suggest hooking forward the perineum during a pain to remove the strain from the thinned border and to promote the elasticity of the tissues.

The various methods described deal very little with the position of the head in its passage through the vulva; in fact, the authors all assert the head should be helped through the vulva by means of extension. This idea is evidently adopted on account of the curve at the lower end of the genital canal. The curve of the canal is somewhat forward, but if the perineum and soft parts were removed, the axis of the canal from above downwards would look somewhat backwards. The curve in the coccygeal bones adds to the idea of a forward curve, but these parts are nearly straight when the pressure of the head dilates them. The head of the child is pressed directly downward on the perineum, the resistance of which, being greatest behind, pushes the occiput forward, so that when the head is freed from the outlet the elastic perineum, still acting on the frontal region, presses the occiput towards the abdomen of the mother. But it does not follow that this mode of extension of the head is in progress all the time before the head is born.

On the other hand, flexion is naturally maintained, the elasticity of the perineum is counteracted by the outer rigid bony parts of the genital canal while the head is descending. When the forehead meets the perineal floor extreme flexion occurs, thereby giving the occiput the less chance of slipping out and passing under the pubic arch. Consequently we see the occiput bone long before the forehead. When, therefore, the occiput is born, the pressure of the elastic perineum from behind pushes the base of the occipital bone under the pubic arch, and thereby some extension is caused. According to the usual rules the accoucheur's duty is now to assist extension. Dr. M'Cartie, however strongly advocates the opposite of this. That is, when the resistance of the bony parts is removed by descent, the accoucheur should substitute a force for the natural one, to counteract the elasticity of the perineum and maintain flexion. This may be done simply and easily as follows: With the patient in the ordinary lateral position, the accoucheur places the finger-tips of the right hand on the occiput, as soon as it appears, with the thumb on the bony portion of the parietal bone; pulling towards him he is easily able to secure the required degree of flexion. Dr. M'Cartie argues that by so doing the sub-occipito-bregmatic diameter of $3\frac{3}{4}$ inches comes into the outlet, while, if extension be permitted, the occipito-frontal diameter of $4\frac{1}{2}$ inches is concerned, and in this latter attitude the head forms a round hard mass, unlike the conical plug of the well-flexed head. He maintains that the strongest pains may be controlled by grasping the head as dictated, so that the head may be delayed till the perineum has sufficiently relaxed. Further, he says, if any extension takes place, the uterus acting directly from the breech to the head, forces the vertex against the lowest and thinnest part of the perineum; but where flexion is maintained, the uterine force is directed through the forehead against the sloping wall of the perineum. By adopting this method, and by delaying the delivery—even returning the whole head into the vagina between the pains—Dr. M'Cartie considers that he now finds rupture of the perineum a rare event.

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THE
MEDICAL AND SURGICAL
REPORTER.

No. 2024. SATURDAY, DECEMBER 21, 1895. VOL. LXXIII—No. 25

ORIGINAL ARTICLES.

SEXUAL CRIMES BY INEBRIATES.*

T. D. CROTHERS, M. D.,† HARTFORD, CT.

The mental condition of inebriates who commit sexual crime has received but little attention. All intimations of the possible insanity of the perpetrator of such crime is covered up by the public indignation and contempt for the inebriate. The impression prevails that inebriety is an aggravation of such crimes, requiring more prompt and summary punishment.

The two classes commonly observed are first, those who while under the influence of alcohol commit rapes on children or old women, or any woman indiscriminately, apparently governed by favorable opportunity, and rarely showing any discretion as to the person. Some of these acts display cunning and reasoning to conceal the motive from the victim, and then to cover up the consequence and avoid exposure. Rapes, abductions, strange and unusual sexual perversions that are startling in their beastiality, are not uncommon. Some of these cases, when intoxicated, display in conversation a delirium of the lowest sexual impulses, which seem only to need opportunity to materialize into most brutal crimes.

The second class of cases are usually periodical inebriates who, while the drink paroxysm continues, associate with most degraded women in the lowest places, and become involved in sexual intrigues and crimes. Or they commit bigamy and marry any one who will consent to live with them. Cases of this class are often seen in the courts, and rarely is the real mental condition recognized.

Of the first class the following are common cases: A rape is committed on a young woman in a specially violent manner by an inebriate, who drags her away to a secluded place and leaves her unconscious; an old woman who shows kindness to an inebriate is violated and seriously injured; a child is lured away and violated, then killed. In the South, negroes of this class who commit rapes, often kill their victims or leave them supposed to be dead. Some of the most atrocious crimes of this character are so clearly the work of insane minds that there should be no question or

†Superintendent Walnut Lodge Hospital.

*Read at the annual meeting of the Association for the study and cure of inebriety at New York City, Dec. 4, 1895.

doubt of it. The fury of the sexual impulse merges into homicide and becomes a wild delirious mania beyond all control.

An inebriate who came from drinking, degenerate ancestors, and who was a quiet, reputable man when sober, was convicted of rape and murder and was hung. It appeared in his history that when sixteen years of age he visited a house of prostitution and remained intoxicated in this place for two days. From this time on, he drank paroxysmally with free intervals of from three months to two years' duration. During these free intervals he worked steadily, was industrious and moral; when the drink craze came on he consorted with the lowest women, and was insane in his sexual impulses. He wanted to have intercourse with every woman he saw, and when his money was exhausted, resistence to his impulses resulted in quarrels and altercations. After a time this impulse died out, and extreme repugnance and penitence followed. The crime he committed followed his expulsion from a low place where he had been drinking a short time, and occurred while tramping to another village. He killed his victim, who probably resisted him, then continued his journey, and was found next day in a house of prostitution. He seemed not to have any clear idea of the act, and, when he became sober, welcomed death. It did not occur to the court that this man was a sexual maniac, and that the crime was foreshadowed by his conduct every time he drank for years before.

A case which created intense feeling in the public mind was that of an inebriate who outraged his daughter, and otherwise injured her, so that she died. He was convicted and hung as a monster of vice. The facts of his history showed that he was a kind, generous man, when sober, but under the influence of alcohol he suffered from sexual delirium. He would demand continuous intercourse with his wife until she became exhausted, then he would find some woman to take her place. The only relief was to urge him to drink and keep him stupid for a few days when this delirium died out. When he recovered only a dim recollection remained of his conduct. He was courteous in the free interval, treated his wife and family very kindly, and, except a certain increasing failure of mind, seemed in no way different from others. He came from inebriate ancestors, and was a skilled mechanic who was more than usually prosperous, were it not for the drink paroxysms.

In a third case, where a similar crime ended in the death of the victim and the execution of the perpetrator, the following facts were brought out: His father was an inebriate, and his mother a pauper. He had epileptic paroxysms from 15 to 20 years of age, when they merged into drink periods, during which he remained stupid from spirits for days, then recovered. After partial recovery from the drink craze, he became a sexual maniac. He would spend several days in houses of prostitution, consorting with every one, until he became exhausted and was driven out. Then a period of sobriety followed with intense active labor as a huckster. During this time he was honest, moral and most energetic, and apparently ambitious to get along and make money. For ten years these drink attacks, coming on twice or three times a year, always began and ended in the same way. First intense narcotism and stupor, then diminished drinking and sexual delirium, with exhaustion and recovery. No notice was taken of the possible mental derangement of this case at the trial.

These crimes are remarkable for their similarity of act and of conditions. Rapes and sexual wrongs are committed in a wild maniacal way, and when associated with murder, are particularly brutal and unreasoning. In a record of five cases of negroes who committed rape and were hung by mobs, four of them were inebriates and had been drinking excessively before the act. The fifth was known to have sexual mania at times, and to rush away to consort with low women for a week or more, then return quiet and rational. In two recent cases crimes of this character were associated with the murder of the victims—two little girls. In one a defense of insanity was urged. A defective insane ancestry was proven, and periodical drinking. The fact that his drinking was not prominent in stupor or delirium, was considered as evidence

of its wilful character. He was finally hung.

In the second case no medical study of the case appeared in court. His bad ancestry and excessive drinking, at times, with sexual excesses, came out prominently in the trial but was considered an aggravation of the offense rather than otherwise. He, also, was hung, but the facts clearly indicated insanity of the type we are considering.

Examples of the second class of sexual crimes, committed while the mind is dethroned by alcohol: Persons of previously good character become inebriates and, at intervals, drink to excess, desert their families and associate with fast women for a period, then return and live reputable lives for a time. These paroxysms of drink and sexual excess grow more frequent and prolonged. Intrigue, dishonesty, crime and wrongs follow. Divorces, strange unreasonable wills, legal complications and complex questions come into court for settlement. Some of these cases commit bigamy. In one instance an inebriate had married four women in five years. Each time he was suffering from a drink paroxysm, and with maniacal cunning concealed his name and identity. He married disreputable women and, when he recovered from the drink craze, deserted them. In these cases the same sexual mania prevails, only it takes on this form of marrying. Some of these cases are marked with many and varied sexual perversions, which are known only to the physician, and but rarely come into legal recognition. *Kraft-Ebing and von Schrenck-Notsing* have written, each, large works on Psychopathia Sexualis, which give many examples of cases which are associated with inebriety, and also some to be caused by it.

In these cases the questions of mental soundness, of capacity to have done otherwise, or the knowledge of the nature and consequences of the act, and of power of restraint, must be decided from a study of the history of the criminal. The crime may be, and often is, but the culmination of a series of acts, which could have been predicted and prevented long before. Thus in a case of inebriety during the drink period, where sexual exaltation and irritation is prominent, it is almost absolutely certain that this condition will increase and become a wild, ungovernable mania after a time. Then a combination of favorable circumstances will end in crime with equal certainty. The low, degenerating brain of the negro, palsied by spirits, is dominated by the sexual impulse, which demands relief, and overcomes all opposition by force, even to crime. The exhausted business man, who has drank spirits in so-called moderation up to a certain point, then develops a sexual delirium that ends in crime, is a maniac. The man who has lived a reputable life up to a certain point, then becomes an excessive user of spirits, with a mania for sexual acts, is very likely to commit crime from the slightest exciting causes. Such a case was recently hung.

The man, at fifty, whose former life had been above suspicion. began to drink to excess, and after seducing a number of women, killed one who began suit for damages against him.

A clergyman who suddenly became an inebriate, poisoned a woman who was his mistress, under the most aggravating circumstances. He was executed, and no effort was made to determine his mental condition.

The tramp who commits sexual crime, is unrecognized in court except as wilful and dangerous, and yet the very fact of his nomadic living is evidence of his degeneration and unsoundness. If a history of inebriety is found associated in such a case, the irresponsibility is beyond question. The capacity to act sanely and to judge of the consequences of his acts, is practically obliterated.

The reckless, *fast* man, who drinks steadily and who lives on the borders of social anarchy and in violation of all laws of healthy life, is prepared to commit crime, along sexual or other lines. Crime is the natural outcome and sequel of his life and conduct.

Women inebriates rarely commit sexual crimes, although, often, they are accessories.

The symptomatic delusion of infidelity, and sexual deceit and fraud, so common in inebriates, often leads to crime.

Associated with this is usually a degree of dementia that can be ascertained. In the inebriate who, ap-

parently not intoxicated, plans and commits some sexual crime, there is a reasoning mania which has some central origin or starting point in the brain. Where the crime is sudden and unexpected, it belongs to the impulsive epileptoid class.

In the first case, after the sexual impulse has expended itself, an impulsive, delusive desire seizes the mind to cover up the crime and its consequences.

The childish efforts for concealment clearly mark the demented mind. After a rape and crime, the body will be placed where it can be readily found, or subjected to rude efforts to destroy by fire, or by burial.

The character of the act, and the vague consciousness of it, manifest in the unskilled concealment and in efforts to escape, with denials that reveal the true conditions, are all symptoms that are unmistakable. The drink history will usually show a stage of continuous drinking and stupor, at intervals, or a delirious wakefulness with sexual disturbances, such as lewd talk, vile words, and boasting of virile power.

The cases in which such crimes are committed with overmastering impulse, resemble paroxysms of concealed epilepsy. They belong to the eaplasine neuroses, so often seen in insane asylums.

In a case under my care, the alcoholic paroxysm after a certain period provoked the most ungovernable sexual impulse. After gratification was a feeling of disgust which, at times, became homicidal, with an intense desire to injure and destroy the victim or person which he used to satiate his appetite. This was resisted with great difficulty several times. He became alarmed and urged his physician to narcotine him at the next drink craze. This was done with opium, and he became an opium taker. The sexual impulse changed and finally died out. In this case crime would have followed had no relief came.

In another case brought to my attention a periodical inebriate who suffered from sexual manias after the drink paroxysms committed suicide to prevent crime which he feared he could not resist.

In all probability the mania for sexual gratification is due to some central lesion of the brain, and follows a uniform course of degeneration, homicidal manias, dementias and suicide are all stages or symptoms of the same disturbance.

The palsy from alcohol may be central or diffused, or both, and manias of varied and complex character follow.

The sexual mania is always evidence of degeneration and failure of brain power and control, and where associated with the drink thirst, or delusions of fear, sense exaltations or depressions is clearly symptomatic of mental disease. Some of these cases of sexual crime following or associated with excessive use of spirits, are paretics. Long residence in prison brings out prominent symptoms.

A man lately hung for murdering his mistress had delusions of grandeur in jail. Before death, and on the scaffold he displayed delirious exaltations. He died in a wild delirium that was mistaken for penitence and spiritual attainment.

In a noted case the criminal who committed bigamy was temperate and reputable up to fifty years of age. He begun to use spirits to excess and associate with low women, neglected his family, spent much time traveling round the country with strange women. Finally he was arrested and sentenced to ten years imprisonment. His property was involved in the bad debts contracted and his family was impoverished. General paralysis was diagnosed and he died in prison.

A careful medical study of his case would have revealed the true condition long before crime was committed.

Another case was the subject of much comment. A farmer with a large family, man of good reputation and some wealth, while returning from the city outraged a strange woman at a secluded part of the road and left her supposed to be dead. He narrowly escaped being lynched, and was finally sent to state prison for life. He died within a year, and the statement was made that death was from a broken heart and sorrow at the crime he had committed. The real facts were, that for ten years before the crime he had drank spirits at intervals of three or four months to intoxication. His drinking dated from shock at the proximity to

a stroke of lightning which made him unconscious. His health had declined from this time, and at times he had manifested a maniacal sexual impulse, particularly after drinking. So intense was this that he became a masturbator. For days after, and during the drink craze he warned his wife and daughters to keep out of his sight for fear he might do something terrible. This passed over and he became temperate and was mild and affectionate in his manner. An early recognition and medical care of this case would have prevented a crime.

Strange infatuations are often noted in men of character and reputation, particularly for women that seem not to possess any particular traits of character. This infatuation often leads up to crime, and is practically a mania that starts from several centers and grows to be an overmastering impulse that even gratification cannot satisfy. This is not recognized as mania, and its unreasonableness grows more intense, until at length it ends in violence. In the court room the desertion of his family and the neglect of his business, the disregard of his reputation and maniacal craze to be with a certain woman, come out. His former drinking habits seem to increase the idea of malice, and severe punishment follows.

The physiological significance of this conduct, the real meaning of this infatuation never appears to be other than wilful neglect and wantonness.

Many of these cases do not go as far as crime, but stop short of it. But legal questions and complications follow frequently, and the real mental state is covered up and escapes notice.

If the mania was recognized, and the legal measures of treatment used were based on this state, more exact justice would follow.

Some of the facts found in these cases may be stated as follows:

1. The use of alcohol on the brain centers, by paralyzing and disturbing their harmonious action, is most likely to be followed by manias and delusions.

2. The several nerve centers may suffer by irritation and exaltation, or depression and paralysis.

3. In the former case, they dominate all other centers, and either act explosively or by continuous irritation and demand for relief.

4. The fact of using spirits, coupled with wild sexual conduct, is strong evidence of mental weakness and disease.

5. Sexual crime in an inebriate is always some form of insanity. The want of control, and the absence of rational judgment of the effect of the act and the consequence from it, are usually very clear in every case.

6. Reasoning and cunning to conceal the crime never implies sanity by itself, or preparation to commit the crime; both are the workings of an abnormal mind, dominated by a morbid impulse.

7. Acts of any kind showing these impulses, or in a case of sexual mania, are open to question, unless they are rational and along lines of reasonable motive and conduct.

8. The explosive character of sexual crime, at its final culmination after a series of acts that lead up to it, should always receive the closest medical study.

9. Sexual crime and questions of legal dispute among inebriates should receive careful medical study before they come into court, and the facts of the crime and criminal be brought out clearly before any legal decision of the final disposition of the case be made.

In a recent lecture, Willis L. Moore, the new chief of the Government Weather Bureau, spoke on the importance of studying the soil as well as the air in forecasting frosts. The introduction of this feature added greatly to the efficiency of the predictions of the Wisconsin bureau, when he was in charge of that. This State is noted for its cranberry beds, to which great damage is caused by early frosts. Often there were destructive frosts when the town temperature did not go below 42°. The frost, depends, of course, upon the lowering of the temperature of the soil. If it is dry and porous, it gives out its heat readily; if it is wet it has much of water stability of temperature. A half inch of rain evenly distributed is enough to counteract many early frost nips.—*Pub. Opinion.*

ACUTE GASTRITIS.*

A. L. BENEDICT, A. M., M. D., BUFFALO, N. Y.†

It is theoretically objectionable to use the word *acute* in a restricted sense, as indicating a higher grade of inflammation than that understood from the use of the word in regard to catarrhal inflammation of others. Practically however, the stomach is susceptible to a high grade of inflammation, to which other internal organs are scarcely liable. Occasionally the vagina, rectum, urethra, or the openings of the face are inflamed and eroded by the careless or criminal — including suicidal — use of caustic agencies. It is said that one of the kings of England was put to death by the introduction of hot irons through the anus, on account of superstitious fear of inflicting any mutilating violence on his person. Occasionally, the upper air passages or even the lungs are violently inflamed by inhalations of steam, but barring almost immediately fatal accidents, substances that are strongly irritant, either through chemical properties or heat, do not affect the internal organs except as they are swallowed. Of all parts of the digestive apparatus, the stomach is the one which is pre-eminently exposed to serious lesion. The mouth and œsophagus have usually, only a momentary contact with the irritant, being almost immediately soothed by a draft of liquid. The intestine, the liver the urinary organs may be inflamed but by a very dilute solution of the irritant. Thus, there is a practical necessity for distinguishing between an ordinarily severe idiopathic catarrh and the violent injury inflicted by a corrosive agent.

The consideration of *acute gastritis*, therefore, involves the discussion of corrosive poisoning. Without going into details that must be evident to the careful reader of any text-book on general practice or toxicology, some matters remain for discussion in the light of modern advancement of medical science and art. The diagnosis of the exact poison used is a matter of great importance, and, strange as it may seem, it rests almost entirely on information furnished by the patient or his friends, and upon the confirmatory evidence supplied by inspection of the remnants of poison, of the labels of boxes and bottles, and by reference to prescriptions and druggists' memoranda. The diagnosis between the various poisons by the symptoms and signs is extremely difficult and uncertain unless the case is too far advanced for medical aid. The stains of the various mineral acids, the color of some metallic salts, the glow of phosphorus, are much more conspicuous and significant in text-book descriptions than in actual practice. In short, the successful treatment of poisoning depends more upon the shrewdness of a detective than the careful methods of the chemist and pathologist.

The treatment of poisoning may be summed up as follows:

1. Render the poison insoluble if possible, or decompose it into harmless derivatives.
2. Evacuate the stomach unless the first indication can be absolutely fulfilled or unless the mechanical danger of this process is greater than the danger from the presence of the poison.
3. Protect the alimentary tract by demulcents if the poison is corrosive, but beware of demulcents that may interfere with the precipitation of the poison.
4. Support the vital forces.
5. Aid elimination through the various emunctories, and guard the various channels of elimination against chemical and mechanical injury.
6. Attend to whatever organic changes the poison may have produced in the blood and solid tissues of the body.

The ability to fulfill the first indication depends upon chemical knowledge and upon ingenuity in preparing antidotes extemporaneously.

If there is any unavoidable delay in precipitating the poison, attention should

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be turned immediately to the second indication. The writer believes that better practice would result if students were thoroughly taught the use of two simple emetics, the finger in the throat and the hypodermic tablet of apomorphine. Mustard and mineral emetics should be avoided in the care of a stomach already eroded by a powerful irritant. An apparent exception exists in the use of zinc or copper sulphate in the treatment of phosphorus poisoning, but here the indication is rather to precipitate the phosphorus than to evacuate the stomach.

A colleague of the writer and he himself, were among the very first to show that apomorphine was efficient in the treatment of poisoning by morphine and other narcotics. It is true that deep narcosis will prevent the reflex from irritation of the fauces or from the central effect of apomorphine, but, so, too, will direct emetics probably fail in the same condition, and, if so, their use has simply added to the poisonous contents of the stomach. Constitutional depression alone may prevent the action of an emetic. Some time ago, the writer had under treatment a patient who refused to have the stomach contents removed by the tube, but who volunteered to take an emetic so that the chemical examination could be made. Five milligrams of apomorphine were given without producing the least effect and, after a few minutes, an attempt was made to provoke reflex vomiting from irritation of the fauces. The finger was introduced into the pharynx even to the entrance to the œsophagus, and palpation was practiced of the naso-pharynx and of the posterior part of the larynx, without the least effect in the desired direction. If such a person were to take poison it would be folly to run through the list of emetic drugs, but the use of the stomach tube would become imperative.

There is a decided prejudice against the use of the tube in corrosive poisoning on account of the dread of rupture of the stomach. The writer can not comprehend why the use of the tube is more dangerous than the evacuation of the stomach by an emetic. Surely, the danger of poking a hole through even an eroded stomach is insignificant, and it is inconceivable that there should be a greater reflex spasm and increase of intra-gastric pressure from the irritation of the tube than from retching and vomiting otherwise excited. In a person who happened to be accustomed to the passage of the tube, the evacuation of the stomach in this way would seem preferable, as involving less strain. Some consideration must, however, be given to the fact that greater blame would attach itself to the physician who was so unfortunate as to have the stomach rupture during the use of the siphon, than if the same accident happened after the administration of an emetic drug. There is, furthermore, a very practical objection to the use of the stomach tube in many instances, namely, that large pieces of food pass with difficulty through even the largest sized siphon. This objection diminishes in force as the time after a meal is longer, and as the food is more carefully masticated. The proper tube for use in cases of poisoning is a No. 12, soft rubber; one with square cut, instead of catheter-shaped internal end.

The third indication to be met in the treatment of corrosive poisoning constitutes the attention to the gastric lesion. In the choice of demulcents, oil should not be used after phosphorus, and, in general, a preference should be shown to "dry dressings" such as bismuth sub-carbonate. Salol, unless salicylic or carbolic radicles are already present to an excessive degree, is an excellent antiseptic. If there is much tendency to the formation of gases, dessicated charcoal may be employed. The most satisfactory method of using charcoal is to prescribe it in bulk; direct that it be put in a tin can and heated on a stove occassionally, to drive away moisture. It should be administered in at least half-teaspoonful doses.

The writer would protest against the common practice of deluging the stomach with alcoholics, digitalis, etc. These are not absorbed when most needed, and the latter is altogether too slow in its action to be used in emergency practice. Of all stimulants, the most generally useful is heat. Instead of the ordinary stimulants, vaso-contracting doses (.0005 or less) of atropine and strychnine may be given hypodermatically.

When the time arrives that our

anxiety turns from the poisoning to the gastritis, the stomach should receive as little interference as possible. Nourishment is usually not needed for two or three days; if imperative, the bowel may be used instead of the stomach. Small quantities of ice and of opium may be administered to allay thirst, but the stomach is not to be thought of as a digesting organ. In the choice of nutrient enemata, the writer prefers an egg beaten up with salt and water. The entire bulk of the enema should not exceed 100 or 150 c.c.

THE SURGICAL MANAGEMENT OF SUPPURATIVE FORMS OF TUBAL AND OVARIAN DISEASE.*

JOSEPH PRICE, A. M., M. D., PHILADELPHIA.

For centuries there was no precise knowledge of the character and organs involved in pelvic suppuration. Everything was put under the head of pelvic abscess. The term in itself conveys an idea of the limit of the knowledge of the earlier surgeons—if by such name we may designate them—of the character of the relative functions of the pelvic organs, and of the troubles in which they are frequently involved. But it is not productive of results to spend much time in a cemetery; we find more profitable teaching in the work of the men of our own times than in that of the men of earlier centuries. Limited as was the nomenclature, it served to cover about all that was known.

We are no longer greatly in need of medical and surgical terms. Every experimenter, with the coincidence or accident of a success, takes a cross-field cut to get into print and herald the new method or doctrine his genius has evolved. Not satisfied with anything in the old, or in the clearly descriptive and intelligible of the modern, he invents a new nomenclature, and to his new fad or "pad" gives the sweet seductive euphony of his name.

We would naturally suppose that as we grow in precise knowledge of the character and organs involved in pelvic suppuration, there would be a more general concensus of opinion as to the structures involved in the most common varieties of intrapelvic disease, and as to treatment.

While our literature is burdened with discussions of pelvic diseases and their treatment, there have been a few men doing our scientific thinking for us—a few who have answered many of the obstinate scientific questions which lie within the range of facts related to other facts.

Bernutz and Goupiel have carried the spirit and accuracy of the mathematician into their minute investigation, their keen scrutiny of co-ordinate influences and results. They were investigators and not mere controversialists; they devoted time and effort, not to disputing about facts, but to discovering them. Our science would be a sterile thing without the impetus, and the patient, prolonged investigation such men give it. What is best, they give us classified facts, vital relations; give us results, and reasons for them; give us discoveries and not inventions of doubtful value; the logical conclusions of practical investigators and not mere theorizing. As close observers they have given us the results of their observations. A very distinguished scientist has given us a broader meaning of *observation* than is that of common acceptance. He has defined it to mean, "the strenuous exertion of all the faculties behind the eye, as well as the assiduous training of the eye itself." He adds: "I have educated five observers; one of them, to be sure, has turned out to be my deadliest personal enemy, but still I affirm that he is a good observer, and that is the best compliment I could pay him were he my dearest friend." It is true that the men

*Read before the Philadelphia Obstetrical Society, November 7, 1895.

who have given us all the science worth the name, have not been without their personal enemies.

The source from which most mischief has come to genuine scientific discovery has been the class of small critics of the kid-glove or japonica variety—amateur scientists who glean records and combine all discoveries and the results of the experience and observation of many specialists, into one confused mixture. They have been obstructionists, for the reason that they have diverted attention from subjects of vital importance which should receive the most profound study. It is not claimed that all the conclusions of our eminent scientists are without the confines of legitimate criticism and controversy. There are many errors to be corrected. We have not outgrown the possibility of new achievements. There is much yet within the chaos of facts for our finding.

There are, however, in our science and art some settled truths—truths settled by clinical and surgical experience, which we cannot do better than adhere to; the success is not the same when these are deviated from for the new of some adventurer. Early in the history of true pelvic pathology and surgery, these adventurers and obstructionists referred to. denied the existence of tubal and ovarian disease. Later, recognizing the error of their way, they again became obstructionists in the surgical management. Still later, they became advanced thinkers and originators—full of deep surgical wisdom; critics of well-established, safe and simple forms of treatment. To follow the campaign of a few would-be leaders is one of the most interesting and at the same time disgusting chapters in pelvic pathology and surgery. First, they denied the existence of tubal and ovarian disease; occlusion of tubes with retention of blood, pus or water, with partial or general adhesions to important viscera or structures.

Later they admitted all this, but they tortured original methods of treatment. Simple, direct, and positive methods were criticised. A few months or a year later, they tried to startle the world by rather ultra and heroic methods of treatment; modifying or changing their views and methods about twice yearly, fully contradicting themselves about every six months.

Nothing could be more unfortunate for the numerous sufferers throughout the world than the present disagreement as to real pathological conditions demanding simple surgery. Recently the whole subject has been greatly complicated by new methods, new appliances, and positively new men or operators. I say new operations, because they have been in the field but about two years. Mr. Tait organized a large and wonderful school in pelvic surgery. They followed his simple and complete methods with startling success throughout the world. The reports of small and large series of successful operations for greatly complicated troubles, were very numerous. The reports in about all cases were of a pleasing nature. Early in the history of this work the followers of Mr. Tait had a lower mortality and better results in a more complicated class of troubles to deal with, than have the present school of undecided operators.

Much of the new work is that of a class of men who have served a very short apprenticeship. The new gynæcologist is like to homœopathy—that which is new is not true, that which is true is not new, a fact peculiar to both. The notable battles fought are worthy of our thoughtful consideration. The statistics and tables given will not stand before the veteran abdominal operator. Much of the work shows decided timidity; and some of the tables, with the history of the cases, would indicate unjustifiable work. Some of the blind and blundering procedures remind one of a very common expression of women—an untruth in its bearing—"What you don't know will never hurt you!" It is by what we have done and are doing, and the results thereof, that professional and non-professional judgment is influenced. Electricity, sacral resections, and a number of fads, are no longer heard of; they served but a short day. Infrapubic work, so much lauded at present, will do a world of mischief before it is discarded.

I can not understand how, any one familiar with pelvic disease, with knowledge based upon a large suprapubic experience, can claim superiority for the

lower method. With a large experience with vaginal hysterectomy for malignancy, and in operative obstetrics, the facts, as confirmed by experience, force one to the adoption of the upper method for ease, for the exercise of good surgical judgment, for completion and for refinement of technique. Sufficient time has not elapsed to give statistics value as a criterion of judgment. A longer and more general trial of the method will give shocking results. For actual disease — pelvic, acute, or chronic — the numerous unrecognized injuries and accidents to surrounding structures and important viscera will stay the hand of all conscientious surgeons, or bring reproach upon abdominal surgery generally. The absolute incompleteness of this method must condemn it.

An operation, to be complete, must remove all that it professes to remove. It must correct all pathological complications and lesions, and leave all surrounding structures in as normal relations as possible. Unrecognized and unrepaired fistulæ, to the number of five or six per cent., following the infrapubic operation, is alone sufficient reason for its total rejection as one of the most imperfect, inefficient, and unsatisfactory methods ever practiced in gynæcology.

The careful reading and studying of good abdominal and pelvic literature—the contributions of experienced investigators and thoughtful observers of all phases of the operation—furnishes the most convincing arguments in favor of the suprapubic method. Ignorance, prejudice or timidity, only will bar out the proofs so ready at hand. The logic of results certainly will not.

The common expression "inoperable" comes from the infrapubic operators or adventurers who have just *stumbled* into the field of abdominal surgery, and are asking, in the phrase of an ex-Congressman, "Where am I at?" He attempts an abdominal section, finds a few adhesions, wipes his thoughtful brow, breathes out a few expressions of surgical wisdom, closes an eighteen-inch incision by "My method"—his certainly—and then declares the case "inoperable." He then suggests or attempts the new dismal-swamp procedure by stabbing, through the vaginal vault, with a knife or scissors, a pus-tube, or ovarian abscess; or he extirpates the little healthy uterus, stating that "the adhesions of the appendages were so solid that I could not complete their extirpation." I presume this same operator and authority would remove the penis for unilateral or bilateral buboes, and consider it good surgery.

The suprapubic *surgical* management of suppurative forms of tubal and ovarian disease is easy in the acute cases, complicated and trying in the many neglected and chronic cases, but rarely is it necessary to "back out from the operation at the table," or to abandon the operation at any point. The management of the omental and bowel—small and large—adhesions, and the careful repair of all bowel lesions, is easy and is vital in every case.

The enucleations are complete and easy in puriform disease. A prominent operator records that, "I have left twenty-one times parts of the appendages in the pelvis in the one hundred and fifty-seven cases of serious suppuration upon which I have operated."

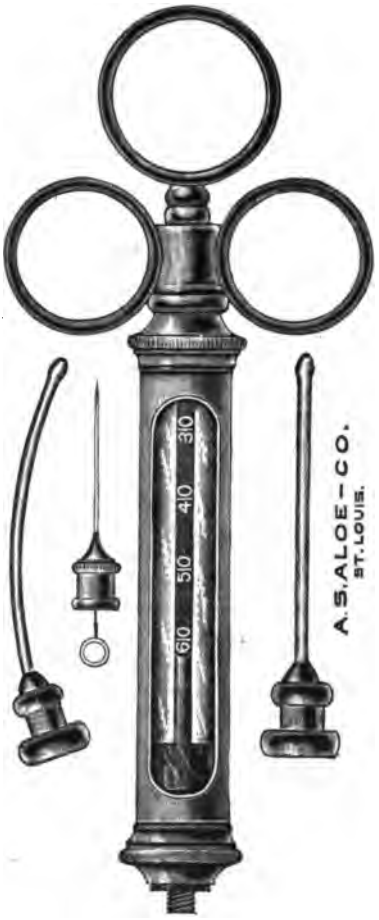
Reflect a moment upon this recorded admission of a man traveling as a gynæcological missionary in America, where gynæcology had its genesis. I have, hundreds of times, repaired bowel lesions, and I have freed adhesions by the hour. Nothing in my professional work gives me more pleasure than the ability to deal with visceral complications and lesions incident to the natural history of intra-abdominal and pelvic disease. The scientific and surgical interest of the American profession in bowel and all visceral surgery, as exhibited in the records of surgeons, is a matter of very natural and just pride. There will be no more encouraging or brighter chapter in the history of surgery than that which will record the work of the last decade.

The suprapubic method, as perfectly practiced—free of errors of omission and commission—is the only operation that can give perfect, immediate, and permanent results. The accidents, complications, and sequelæ commonly referred to in discussions of the suprapubic operation—of infection, adhesions, fistula following drainage, and improper ligatures—are all avoidable, except in very feeble patients.

AN IMPROVED SYRINGE FOR INFILTRATION ANÆSTHESIA.

BRANSFORD LEWIS, M. D., St. Louis, Mo.

During the past year I have been making large use of Schleich's method of producing local anæsthesia by infiltrating the tissues with an innocuous solution of salt, morphine, cocaine, etc., the anæsthetic effects resulting from the method of applying the fluid rather than



from the drug or drugs employed in it. It has been a source of great satisfaction to both me and the patients on whom it was used. The minuteness of strength of drug employed, removes every element of danger from that source, even though a large quantity of the solution be injected: and the completeness and the promptness of the effects are advantages readily evident.

But I have met with one objection that restricted the use of this method in a marked degree. It is the fact that, no matter how easily and satisfactorily it may be employed in the superficial structures, where there are no large vessels in danger of being punctured with the hypodermic needle, when one is injecting in the depths of a wound in the neighborhood of large arteries or veins, as in enucleating bubo-glands immediately above the femoral vessels, etc., the liklihood of running the needle into one of them and producing disastrous results is not a fancied one.

By means of the needles represented in the cut, I have been enabled to do away with this difficulty. They are blunt-pointed, and made of German silver, so that, though of sufficient stiffness to be thrust into the connective tissues of a wound after the skin has been severed, they would not injure a blood vessel if pushed against one.

The anæsthesia is begun, therefore, with a sharp steel needle, and continued with either of the two silver ones. The choice between the latter depends on whether a curved or straight needle is more conveniently used.

The advantages offered by this improvement have shown themselves to be eminently practical and serviceable, and, in my estimation, will advance the scope and usefulness of the method to a great degree.

Stains and Their Removal.

Tar can be taken off with petroleum.

Paints must disappear before turpentine and perseverance.

For iron mould, spread the stained part on a pewter plate set over a basin of boiling water, and rub the spots with bruised sorrel leaves, then wash the article in soft warm suds. Or, cover the spots with a paste made of lemon-juice, salt, powdered starch, and soft soap, and expose to the sunlight.

COMMUNICATIONS.

SURGICAL INTERFERENCE IN RECTAL DISORDERS.*

J. McFADDEN GASTON, M. D., ATLANTA GA.

The rectum is an ovidal canal extending from the sigmoid flexure of the colon to the anus. It is narrowest above and below, presenting a pouch-like shape, capable of great expansion and serving as a reservoir for the debris, which results from the completion of the process of alimentation. Its walls are thicker than those of the colon and capable of great contractiou in expelling the excrement. The serous coat invests its upper part and forms the meso-rectum and extends on the sides sparingly, but more in front. The rectal fascia, of fibro-connective tissue, with its blood-vessels, surrounds the lower portion of the rectum.

"There are two sets of muscular fibers encircling the lower part of the rectum, known as the outer and inner sphincters, by which it is automatically closed except when dilated voluntarily for the release of flatus or the discharge of fecal matter. There is also another distribution of circular contractile muscular fibers at the upper limit of the rectum, which constitutes the division between it and the sigmoid flexure of the colon. This may be appropriately designated as the recto-colic sphincter, and forms an effective barrier ordinarily to the descent of the excrement into the rectum. This annular muscle has not received from anatomists or physiologists the consideration which its rôle in the intestinal functions warrants. It is a veritable constriction from muscular contraction, by which the colon is normally closed against the descent of the fecal mass into the rectum." Before the excrementitious matter reaches this constictor it is deprived of its nutriment, and after passing this annular division, it is deposited in the reservoir below until a convenient opportunity is afforded for its expulsion through the anal outlet.

The multiform departures of the tissues of the rectum from their normal condition induces various pathological modifications and functional derangements. There are not only changes of structure from ordinary inflammatory processes, but also material alterations in the constituent elements of the organism from a deterioration of vitality induced by syphilitic and tuberculous degeneration, as well as a profound depravity of structure from the development of carcinomatus neoplasms.

Simple fissure of the anus, involving mucous and submucous tissues of the rectum, may prove a source of reflex disturbance to the nervous system, so as to require operative measures for relief. Hemorrhoidal developments, whether confined within or protruding from the anal opening, may be complicated with sanguineous exudation demanding a surgical procedure. Strictures of the rectum from fibrinous depositions in its walls call for division or excision of the structures involved.

Fistula in ano, resulting from perirectal abscess, may be complete or incomplete, and admits of no radical cure without operation, even when associated with tubercular disease. Papillomatous nodules, located in the walls of the rectum, whether limited to a small area or extending over a considerable portion of the mucous membrane, should be removed, with a view to obviate their degeneration into a malignant form of disease. When carcinomatous induration of the rectal tissues is detected early, there is encouragement to undertake an operation, but after the breaking down of the neoplasm with infiltration of surrounding structures, no benefit is derived from excision of the parts involved.

It is a noted point in regard to the prac-

*Read before the Southern Surgical and Gynecological Association, at the meeting in Washington City, November 12, 1895.

ticability of eradicating rectal troubles of syphilitic origin by medication, and with the present light on the subject it seems justifiable to resort to such a surgical measure as the condition indicates, while constitutional treatment is being carried out in the case.

There are instances of supposed development of specific diseases in the form of stricture of the rectum, after the lapse of many years subsequent to any syphilitic contamination, and some authors claim their ability to diagnosticate specific stricture even without a previous history of primary syphilis. But the medical profession should be very guarded in coming to such a conclusion upon a general consideration of the nature of the case; and without sufficient evidence of the initial lesion in a patient of respectable position in society, no theoretic bias should lead to a diagnosis of syphilis.

There is a rectal relaxation consisting in prolapse of the intestinal wall, which, in young subjects, is often relieved without resorting to any operative measure. But again, this occurs in adults or even in old subjects, when nothing short of an active surgical interference can be relied upon for relief, and even with the most vigorous measures, prolapse of the rectum proves, in some cases, intractable.

There is not infrequently an ulceration extending around and within the lower part of the rectum, involving the glandular structure near the anal outlet, which is only amenable to excision. This has been mistaken for the breaking down of hemorrhoids, but is quite distinct in its pathological condition, and should not be confounded with other ulcerative degeneration of the rectal tissues.

While there are some rectal disorders besides those enumerated which call for the surgeon's attention, it is not requisite to enter into their consideration in this general summary of the conditions demanding operative interference.

It will be perceived that the rectum affords material for surgical work of the most important character, and it should not be relegated to those professing to deal with so-called orificial surgery.

The readers of the *Annual of the Universal Medical Sciences*, for 1895, will note that Dr. C. B. Kelsey limits his contribution to syphilitic and cancerous disease of the rectum. I have noticed, however, that another specialist in this department, Dr. Joseph M. Mathews, is arousing the dormant energies of the profession to the various phases of rectal troubles through his publications, and especially in his *Quarterly Journal*. While the operation of Kraske and others for the extirpation of the rectum does not receive his sanction, yet there are desperate cases in which some form of removal is warranted, rather than leave a patient to die without any operation.

This matter of rectal surgery is not viewed from the standpoint of the specialist, as my attention has not been directed to it except as a part of my work in the rather extended field of a general surgeon. But I am fully impressed with the conviction that many cases find their way into the hands of quacks which ought to be treated by members of the regular medical profession, and preferably by those who have made a special study of rectal diseases and are prepared to treat properly all the surgical disorders of the rectum. In the paper by Dr. Arpad G. Gerster, before the American Surgical Association, upon the surgery of the rectum, in 1893, there is a full resumé of cases treated during four years in the Mount Sinai Hospital of New York. There were 557 patients suffering from rectal ailments admitted within this period; of these 280 were classed as hemorrhoids; 167 were cases of fistula, including the more acute forms of ischio-rectal trouble; 17 cases of carcinoma; 11 cases of prolapse; 6 cases of cicatricial stricture; 6 cases of chronic ulcers; 7 cases of polypus; 1 case of multiple adenomia; 2 cases of congenital atresia of the anus and one of the rectum, with 4 cases of anal fissure.

It will be observed that hemorrhoids and fistulæ make up four-fifths of the entire number of cases involving the rectum, and it seems remarkable that only four cases of fissure should have appeared, making an average of one to each year, when this is generally regarded as of frequent occurrence. Dr. Gerster performed extirpation of the rectum in five cases, four times for carcinoma, and once for stricture caused by ulcerative proctitis. In both, the operation of Kraske was performed. Two

other cases, in which about six inches of the gut were removed by Kraske's operation were successful. "In the case of a womon fifty years old, whose very wide pelvic aperture permitted easy access without extirpation of the sacrum, the coccyx alone being excised, four and a half inches of the rectum were removed according to the old-fashioned perineal method. She made an easy and rapid recovery." By Gerster a preference is given to the radical operation over colotomy, where the condition of the patient permits it, but the patients should be carefully selected, in view of the general powers of resistance in the patient rather than in the extent of the local disease which is encountered. It is urged that only such cases should be selected as have a good circulation and whose heart and blood supply are fairly preserved. Preliminary colotomy is enjoined where much fecal distress and more or less fever exist; while preparatory feeding and general regimen are held to be essential for success.

In the discussion of this paper, Dr. Lewis S, Pilcher, of Brooklyn, presents some interesting data from the service of Dr. Fowler and himself in the Methodist Episcopal Hospital of Brooklyn, N. Y., relative to carcinoma of the rectum. Of ten cases under observation in the last five years, three prcsented such an extent of local disease and general cachexia that operative interference by extirpation was inadvisable, In the fourth case, in which the disease extended four inches above the anus, operation was refused. In the other six cases, operations were done with two deaths as the immediate result, and without a radical cure in either of the other four cases, though life was prolonged for some time. One of these patients was twenty-nine years old, and another only twenty-three years.

Dr. H. M. Mudd, of St. Louis, states that he has removed the upper portion of the rectum and the lower portion of the colon through the abdominal cavity with success.

Dr. L. McLane Tiffany, of Baltimore, says that by proctotomy he has utterly failed to give relief in rectal troubles, and he believes that colotomy gives the best results.

Dr. T. F. Prewitt, of St. Louis, claims that a great many cases of cancer of the rectum are not suitable for excision, and that inguinal colotomy is the proper course in such cases. He thinks it is better to make a complete section of the colon and bring both ends of the bowel out. In this way you avoid the passage of any matter through the lower part and do not need any spur.

In closing the discussion, Dr. Gerster remarked that he had not mentioned closure of the colon after extirpation of the rectum, but he had reclosed the opening into the colon when the cause for which the colotomy was done had been removed. His section being transverse, including almost the entire circumference of the bowel, both apertures protrude through the external wound. He believes that the spur is essential in colotomy.

In an editorial review of operative measures for cancerous affection of the rectum in the *Annals of Surgery*, by Dr. J. P. Warbasse, a full report of those having large experience in the treatment ot this class of cases is presented. I would refer those interested in deciding upon the practicability of affording relief in carcinoma of the rectum, to this concise and impartial record without entering into minute details of the observations. It may be stated, however, in general terms, that conflicting views are presented as to the stage at which operative measures of relief are admissible, and no definite conclusion can be arrived at in regard to the precise steps which are indicated, or as to the mode of proceeding in different cases. An operation adapted only to women is detailed with some confidence in its advantage, which, so far as my observation goes, has not been practiced in this country. It consists in dividing the whole perineal body into the rectum, and thus secure an ample field of operation, which is subsequently to be reunited by sutures.

The burning and urgent appeal to the surgeon to-day is for a definite settlement of the issue as to active interference in cases of pronounced cancer of the rectum. Shall we content ourselves with the mere palliative measures of inguinal colotomy and leave the diseased structures untouched, as urged by Dr. Matthews, in his paper before the Amer-

ican Medical Association; or shall we endeavor to remove all the tissues involved by extirpation as recommended by Dr. Gerster, in his paper presented to the American Surgical Association? The full statistics of results in the hands of skilled operators ought to be collected and a fair analysis made before a final adjudication of the question can be reached. The materials for such a comparison should be obtained from cancer hospitals in this country and other countries, as well as from general hospitals receiving and treating this class of patients, and being grouped together, a fair inference may be drawn as to the feasibility of active interference in any case of carcinoma of the rectum.

VAGINAL HYSTERECTOMY.*

JOHN B. DEAVER, M. D., PHILADELPHIA.†

PROGNOSIS.—As to the probable outcome of the operation of a vaginal hysterectomy for carcinoma, it is too early in the history of the operation to draw definite conclusions, but the results thus far have proved that especially early and even later operation prolongs life. There is no doubt but that removal of the uterus for carcinoma offers a longer immunity from return than does operation for the same disease in other parts of the body, if done early.

ANATOMICAL RELATIONS.—The relations of the ureters are of so much importance in this operation that I have thought it worth while to describe their course. They extend from the termination of the pelvis of the kidney to the bladder, passing through the laminæ of the subperitoneal connective tissue. Their average length is about twelve inches. At their commencement they lie about three inches apart, but on nearing the base of the bladder they run forward and pierce its wall, and at their termination are separated by a distance of about an inch and a quarter.

We may describe them as consisting of three portions, viz.: abdominal, pelvic and vesical. The abdominal portion is in relation posteriorly with the psoas muscles and its fascia, the genito-crural nerve, and the common iliac artery. Anteriorly, they are covered by the peritoneum, and on the right side lie partly under the caput coli and ascending colon, and under the descending colon and sigmoid flexure on the left. About the middle of their course they are joined by the ovarian vessels, which cross them to descend into the pelvis along their outer border. At the brim of the pelvis the right ureter lies just behind the peritoneum, where it can be seen with the ovarian vessels. On the left side the relations of the ureter to the sigmoid flexure depend entirely upon the length of the meso-sigmoid. Thus in one case the ureter may lie behind the sigmoid vessels, and in another directly behind the intestines. After crossing the psoas muscle the ureter crosses obliquely over the common iliac artery above its bifurcation, dropping into the pelvis at this point.

The pelvic portion runs in front of the sacro-iliac synchondrosis, then upon the obturator internus muscle and its fascia, finally leaving the pelvic wall to join the bladder. It lies, at first, usually to the inner side of the internal iliac artery, subsequently to the outside, and is again crossed by the ovarian veins and artery, which leave it at the acute angle. It then descends in the lower cellular tissue to the floor of the pelvis in a forward direction, passing directly under the uterine artery, and through the uterine plexus of veins and beneath the base of the broad ligament. Finally it crosses the upper third of the vagina to reach the vesico-vaginal interspace, and pierces the bladder opposite the middle of the vagina.

The vesical portion, about half an inch

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in length, runs obliquely downward and inward through the coats of the bladder to open on the mucous surface at a distance of about an inch to an inch and a quarter from its fellow, and the same distance from the internal urinary meatus.

The uterine artery leaves the lateral pelvic wall at a point just above the ischial spine, reaches the vaginal wall at the level of the os externum, and then runs upward along the side of the uterus to reach the fundus.

PRELIMINARY TREATMENT.—Much depends upon the preparation of the pateint for the operation. The most careful antisepsis of the vulva and vagina should be carried out. It is the practice of some surgeons to have the hair covering the soft parts removed; I do not believe this necessary if this region be thoroughly scrubbed twice a day with some good detersive soap for two or three days prior to the operation. The vagina should be cleansed with soft soap, and then both the external genitals and vagina irrigated with a 1 : 60 carbolic acid solution containing an amount of bichloride of mercury to make it equivalent to 1 : 4000. The bowels should likewise be carefully regulated, and a mild laxative administered for a few days before operation, to thoroughly clean out the lower end of the alimentary canal. If there be present granulations covering the cervix or occupying the uterine canal, or should the cervix be eroded and accompanied by a fetid discharge, it would be wise at first to curette away the granulation tissue exciting the discharge, and have the vagina subjected to bichloride irrigations twice or thrice daily, the frequency depending on the character of the discharge.

METHODS OF OPERATION.—In the operation of vaginal hysterectomy, one of three methods are practiced—the clamp, the ligature and that by enucleation (Langenbeck's). There is no doubt but the method by enucleation is the ideal one, and should be adopted when the case is suitable for it.

The enucleation method consists first in liberating the cervix by carrying two elliptical incisions through the vaginal wall in front of and behind the cervix, or by a circular incision carried around the cervix, the dissection being made close to the cervix. This should be the rule, whatever method be employed. In the removal of neck tumors in the immediate neighborhood of large vessels, or, in in fact, any tumor occupying an important vascular locality, the surgeon follows the practice of dissecting close to the tumor. The second step in the enucleation method is in making a subperitoneal dissection of the uterus. I think this should be the operation of choice in the early cases at least.

Between the clamp and the ligature method there is, in my mind, no doubt of the superiority of the latter. I grant there are a few cases where the clamp method is probably the better operation, but these constitute the exception. The ligature method of vaginal hysterectomy is as much superior to the clamp as is the dropping of the stump in the supravaginal, having tied off the uterine appendages and ligated the uterine arteries, over that of the *serrenœud*. The ligature is surgical, while the clamp compared to it is unsurgical.

In the selection of any operation, that which will leave the patient the most comfortable, not, of course, exposing her to a single additional risk, should, in my judgment, be the one of choice. I am frequently confronted with the argument, "Why, the clamp method can be done in fifteen minutes and less." In answer to which my reply is: The ligature method can be done in thirty to forty minutes, The question of a few moments longer in doing the operation is of no import, as, if the case is suitable for a hysterectomy, there will be no shock. The loss of blood in the ligature method is no greater than that in the clamp, if done properly, and the security against secondary bleeding is much greater. The ligature method is one that can be made a strictly aseptic one, and maintained so throughout, while in the case of the clamp there is always some suppration following, thus exposing the peritoneum to infection from without.

The question may arise, Why not close the wound in the vault of the vagina? The wound closes itself. I have observed, and demonstrated after the removal of the uterus, the almost perfect apposition of the cut surfaces; and therefore, have never been able to see the necessity

of introducing sutures. If bleeding follows reaction from the anesthetic, and the wound in the vagina has been closed by sutures, it may be the cause of a subsequent abscess, while in allowing the edges of the wound to oppose naturally, and introducing a little packing of iodoform gauze into the vagina, not carrying it into the pelvic cavity, the blood finds its way into the vagina and is taken up by the gauze.

In either the ligature or the clamp method, when the cervix is entirely destroyed, thus making it impossible to grasp it with a vulsella or pressure forceps to pull the uterus down, my practice is to introducce a tenaculum into the uterus, by which I am able to make slight traction, and thus steady the organ; this allows me to free the vaginal walls and expose the supra-vaginal portion of the cervix, which I grasp with the vulsella, and thus command the uterus through the remaining steps of the operation.

Operation.—The bowels and bladder having been emptied, the patient is anesthetized and placed in the lithotomy position, with her limbs held by assistants. A Sim's speculum is introduced and the cervix uteri exposed. The cervix is then grasped either by a vulsella or a pair of pressure forceps, the latter being less likely to slip or tear out. Traction is made upon the uterus, drawing it downward and forward to expose its under surface. An incision is carried across the exposed surface to the situation of the internal os, or as far away from the eroded tissue as possible, and with the fingers the posterior wall of the vagina and the areolar issue are freed from the uterus down to the peritoneum. The forceps holding the uterus is then carried downward, and the incision continued to make it encircle the organ. The structures in advance of the uterus are dissected away in the manner before described, great care being observed to keep close to the body to prevent injury to the bladder; having reached the vesico-uterine folds of the peritoneum, the vagina is thoroughly irrigated. The recto-uterine and vesico-uterine folds of the peritoneum are now broken through, and, if the operator so desires, a small piece of gauze or sponge introduced to prevent prolapse of the intestine; this I do not believe, however, to be essential. The female blade of the clamp is then introduced along with the palmar surface of the finger, which acts as a director. The blade of the clamp is made to hug the under surface of the broad ligament, and the end of the blade is made to pass beyond its upper limit. The handle is depressed to make the end appear above the upper surface of the ligament, the other blade introduced, and the clamp locked. The opposite side having been treated in the same manner, the attachments are severed and the uterus removed.

A piece of sponge or gauze is introduced, and the vagina is irrigated; gauze is loosely packed around the clamps to prevent ulceration of the soft parts from pressure, and a light packing placed in the vagina to act as a capillary drain.

The clamps may be removed at the end of the second or third day. In removal of the uterus by the ligature method, the early steps are the same as in the clamp operation. Having freed the uterus from all its surrounding tissues, except the broad ligaments and the peritoneum covering the fundus, the vagina is thoroughly irrigated. The broad ligament are now to be ligated. An aneurism needle, curved on the flat and set at right angles to the handle, is threaded with a silk ligature and passed through the base of the right broad ligament a short distance from the cervix; this secures the uterine artery. Successive ligatures are then applied until the entire ligament is tied off. As each ligature is tied the included portion is cut free from the uterus. Having ligated and secured the right ligament. the left is treated in the same manner.

If there be an elongated body, as is often found in uterine carcinoma, great difficulty may be experienced in ligating the entire ligament upon one side without tying off and removing a portion of the ligament of the opposite side. By adopting this course the organ can be pulled down and the remaining ligatures easily applied. As the ligatures are being tied down, the traction of the uterus should be relaxed. The uterus having been freed from its ligamentous attachments, the peritoneum is broken through and the organ removed.

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PHILADELPHIA, SATURDAY, DECEMBER 21, 1895.

EDITORIAL.

THE WILLIAM PEPPER LABORATORY OF CLINICAL MEDICINE.

The William Pepper Laboratory of Clinical Medicine, complete and ready to begin work, was, on the 4th inst., formally presented to the University Hospital, and to the University of Pennsylvania.

This new departure is of significance higher than its character as a memorial to an eminent man, and broader than its importance as an extension of educational facilities, for it is an earnest of the strength, sincerity and progress of the movement for higher medical education in this country, and it gives practical assurance of the future development of American medical science.

The institution is unique in that it is made for the specific purpose of promoting and stimulating original research and improvements in methods of diagnosing and treating the diseases of human beings and of giving advanced and special practical instruction in the new methods to post graduates, that is, to men who have already obtained the degree of doctor of medicine.

Dr. John S. Billings, director of the University Hospital and of the Laboratory of Hygiene, delivered the address of presentation, in the course of which he read a letter from the donor and endower of the new laboratory, Dr. William Pepper, ex-Provost of the University of Pennsylvania. Extracts from this will give a history of the circumstances which developed this new department:

"My father, the late William Pepper, held the chair of the theory and practice of medicine and of clinical medicine in the University of Pennsylvania from 1860 until the Spring of 1864, when he was forced to resign by the progress of the disease which caused his death on October 10, 1864, in the fifty-fifth year of his age.

"Already at that time a few young

men had formed the definite hope of reforming the system of medical education in America, and of placing it on the sound basis of clinical teaching. I can say for some of them, including my brother George, who died in 1872, at the age of thirty-two years, after a brilliant and all too short career, that the eloquent advocacy of clinical teaching and its effective application by my father supplied at once the inspiration and the exemplar. Both father and son wore themselves out in the service of humanity and science, and fell victims to the terrible scourge of pulmonary consumption.

"It is not necessary to review the long and weary struggle for reform in medical education which has only now ended. The role played by the University of Pennsylvania has been a proud one, as befitted her traditions and her obligations. The names of Edward Rhodes, of Horace Binney Hare, of John S. Parry, of William F. Jenks, should not fail of mention, although they fell early in the struggle; for these were brave spirits, who dared to aspire greatly. And other names, Leidy and Agnew of the immortals; and Stillé and Weir Mitchell, still happily preserved to us in their rare intellectual vigor; and Wood and Norris and Tyson, my lifelong colleagues, must be named with grateful tribute for their labors in the cause of higher medical education, and of clinical teaching and scientific research.

"It was our fond dream, in those early days, that a happy time would come when well-equipped laboratories with adequate endowment would offer the chance of original investigation which was then denied. Horace Hare fitted himself by long and costly training for the special work of chemical research in the field of clinical medicine. His gifts and attainments were worthy of his descent from America's first great chemist, Robert Hare. * * * He entered at once with enthusiasm upon important chemical researches in connection with cases of disease in the hospital wards. In less than one year pulmonary consumption attacked him, and he died in 1878. Parry and then Jenks succumbed to the same affection, while Rhoads, one of the most beloved of our little group, died of organic heart disease. You cannot wonder that I registered a vow to do what I could to secure the erection and endowment of a special department of the University Hospital for chronic diseases of the lungs and heart and a laboratory of clinical medicine to promote original research into the causes and nature of disease."

The most important step was taken when I learned one morning in 1889 that it might be possible to secure to Philadelphia and to the University the services of Dr. John S. Billings. Before evening Mr. Henry C. Lea had responded to an earnest appeal that he would increase a previously contemplated gift to equip a small laboratory of hygiene to an amount sufficient to erect a complete laboratory. His conditions were that if an additional sum of $200,000 were secured for endowment; if Dr. Billings were secured as director of the laboratory; if the study of hygiene were made obligatory on students of medicine, of dentistry, and of certain other branches, he would erect at his expense a laboratory of hygiene, at a cost of not less than $50,000.

He stipulated further that when the requisite amount of $200,000 was secured for the endowment of the laboratory of hygiene an effort should be made to obtain subscriptions of money sufficient to justify the board of trustees and the medical faculty of the University in raising the standard of medical study and in prolonging the course to four years. In order to secure compliance with this final condition it was deemed necessary that a subscription of $50,000 should be made to the medical department, and that an additional guarantee of $20,000 per annum for five years should be secured. This was done, and it was only reasonable that it should be done. Any one who appreciates the commanding influence exerted by the medical department of the University of Pennsylvania will realize that it was essential for the establishment of higher medical education throughout this continent that it should be demonstrated here that such advance could be made and could be maintained with good practical results. As a matter of fact the result of the important change was unexpectedly gratifying. The increased attractiveness of the longer and

more practical course of instruction inaugurated outweighed the much greater cost and difficulty of securing the degree. The receipts of the medical school did not fall off; no part of the guarantee fund was called; and the medical faculty cordially assented, by resolution adopted February 20th, 1894, to the proposal that my subscription of $50,000 should be applied to the erection and partial endowment of a laboratory of clinical medicine. The board of trustees of the University and the managers of the University Hospital and the medical faculty concurred cordially in approving the conditions connected with the proposed foundation.

"There seems to be every reason to hope that the building thus constructed upon plans provided by you will prove well adapted for the purpose in view. That the restriction of the use of the laboratory to original research and to post-graduate instruction has secured general approval, aud has already met a recognized need, may be judged from the fact that nine associates have already received appointments, and have been assigned to distinct fields of original investigation."

"To any one interested in the study of any special disease or group of diseases, such as tuberculosis or heart disease or infectious fevers—all of which destroy so many thousands of precious lives annually—the advantages of establishing a special research fund must seem obvious. I earnestly trust that endowments will gradually accumulate around this laboratory. The good results would be far reaching and enduring. It is indeed hard to conceive in what way we, whose dearest and most cherished interests will be affected vitally by the results of such researches as will be conducted here, can better display our sorrow for the dead and our love for the living than by strengthening the resources of such institutions as this which is to be opened formally to-day. May it long endure to promote the interests of suffering humanity and to enlarge the boundaries of medical science.

Your obedient servant,

WILLIAM PEPPER.

The building is sixty-two feet long, forty-two feet wide, and four stories high, with a basement cellar; built of brick and terra cotta on a stone base to the first floor, with a green slate roof; and fitted up inside with tables, workbenches, and apparatus of various kinds.

The essential idea of the plan is a central bundle of perpendicular flues forming a large chimney stack, around which the work rooms are so arranged that each one has its own flue on its inner face and an abundance of light on its outer face. On the first floor above the basement are rooms for microscopical, for chemical, and for bacteriological investigations of the secretions, excretions, outgrowths, discharges, and other products from the bodies of the sick; with a balance room. On the second floor are rooms for anthropometrical work and research, the laboratory of the director and his assistant, and a store room. On the third floor is a large laboratory for post-graduate students, and a dark room for photographers' work. On the fourth floor are a research room for special workers, an assembly room, a library, and a janitor's room. Corridors connect each floor with the adjacent hospital pavilions, which will be devoted to medical cases. One of these corridors will make an excellent photograph gallery, a dark room being provided in the laboratory. The building is heated by steam and at present lighted by gas.

The director and assistant director of the laboratory are to be appointed annually by the board of managers of the University Hospital, upon the nomination of the professor of the theory and practice of medicine and of the professor of clinical medicine, in the medical faculty of the University. The present director, duly appointed in accordance with this condition, is Dr. William Pepper.

In closing his address Dr. Billings paid a fitting tribute to the donor:—

"Broad and far has been his outlook

in thus providing for the future a heritage of power, which mildew, flame, and frost cannot harm. It is not a statue or carving or memorial arch that he has given, things that will blacken and moulder and crumble as the centuries roll by, until the mills of the gods shall have ground them to dust. It is a perpetual wellspring of force, a storage battery which will fill itself and give out warmth and light and motion so long as this institution of learning shall exist on the earth. He says, and says it with authority, find me the means of making the lives of men longer and more efficient—of putting aside the plague that has destroyed our fathers and brothers and threatens to consume our children; his demand is not for the fruit which is known and harvested, but for that of regions yet unknown and unexplored, for which he provides the seed, for charts of dangerous bays and coast lines still unsounded and not yet triangulated.

"The taking such a step as this requires not only the opportunity of means, but also wisdom, courage, faith; wisdom, as regards selection of the unknown regions to be explored, and in providing motive power and guidance for the work to be done; courage, in investing funds in an enterprise the precise results of which cannot be predicted; and faith, in the future progress of science and in the future managers of this important trust.

"But wisdom shall be justified by her children, and this far-seeing, bold-planning man of the silver tongue and the open hand will be remembered as the founder of the first distinctive laboratory for research in clinical medicine in this country, so long as there are sickness and death among the children of men."

ABSTRACTS.

MEDICINE: ITS PAST AND FUTURE.*

SIR EDWIN ARNOLD, M. D., K. C. I. E., C. S. I., ETC.

The first impulse of a very busy man when he has been asked to deliver an address is undoubtedly to excuse himself as politely as he can. That impulse may be described as automatic and instinctive. But when the honor fell unexpectedly upon me of being invited to distribute prizes here to-day to the students of the medical school of St. Thomas's Hospital, I could not consider the occasion ordinary. The profound respect which I feel for your noble profession; my true delight in its progress and advancing achievements; the firm hope I entertain of greater medical and surgical developments to come, which will by and by render human life more pleasant and more prolonged; my many friendships among the leading physicians and surgeons of the day; my own private gratitude to the skill and goodness of some among them; and my personal interest in your great and useful foundation of St. Thomas's—these, with other considerations, suppressed in me that "reflex" and automatic "No" which fatigue and dread of apparent presumption must otherwise have enjoined.

You, gentlemen, begin by self-devotion and fearless defiance of risks which others dread and shun. Your original choice is brave, your early ambition honest, your first steps hard and dogged by the spectre of examination; your daily work, even if ever so little elevated by enthusiasm and faith, is work that brings help and hope to your fellows, and constitutes you the common friends to all.

Moreover, you are advancing like true victors in a march of constantly aug-

*Introductory address St. Thomas's Hospital.

menting conquests over that strange fascinating waste of twilight and wondering exploration which is called "science." There have been times when it was not particularly honorable to be a doctor. The specimens of medical and surgical practitioners whom we find held up to ridicule in the pages of Molière, or in the pictures of Hogarth, deserved as far as can be judged, the pillory of immortal scorn in which their ignorance and pretentiousness have been placed by the genius of satire. Yet there were not wanting, even in times of Thomas Diafoirus, serious and modest searchers after the secrets of healing, men imbued with the dignity and solemnity of their calling; and, indeed, I think we could fill up every single age from Galen and Avicenna to Ambroise Parè and John Hunter with the names of truly great doctors. But your lot is cast in an epoch of such acceleration of knowledge, such expansion of methods and resources, such ever-increasing power of doing solid good to your kind, that the old satires have died away. The new age frankly honors and values your vocation, in discharging which you yourselves move forward by rules more and more exact and less empirical.

Living men of 60 years or so belong entirely to the present benignant reign—and within that reign we can recognize, though lacking your closer observation, what prodigious progress has been accomplished by medicine and surgery, and, I may add, in the science of sanitation. It was one of the surgeon's of St. Thomas's Hospital—the illustrious John Simon, F. R. S.—who may be said, in conjunction with Mr. Edwin Chadwick, to have invented public hygiene. These great benefactors, and their able assistants, had none of the knowledge which you all, in greater or less degree, now possess about bacilli and bacteria; but by improved drainage, purer water supply, good paving and scavenging, removal of refuse, and prevention of overcrowding they succeeded in establishing such a difference between clean and unclean places that the way was paved for the fruitful discoveries which followed.

Now you have at ever-extending command the vast new region of bacteriology, wherein sunshine and daylight, and the wonderful natural forces of life, those that are friendly amongst the microbes, fight on the side of your enlarging science, and, on our behalf, against the "pestilence that slayeth in secret." A great authority has declared that "a day will come when—in London, in Berlin, in Paris man will not die of diphtheria, of typhoid, of scarlet fever, of cholera, or of tuberculosis any more than he dies in these cities to-day of the venom of snakes or of the tooth of wolves."

In connection, moreover, with that promising subject of the antitoxins such as those for diphtheria and tetanus, there is some promise, be it observed, of injections which will neutralize snake poison. Professors Calmette, in France, and Fraser in Edinburgh, after patient experiment with snake venom have apparently succeeded in rendering rabbits, and eventually horses, proof against doses of this 350 times stronger than an ordinarily lethal quantity.

Has anybody given thought in the same connection to what might be done to rescue the draught cattle and horses of South Africa from the tsetse fly? Whole belts of our growing empire there are cut off from trade by the poison of this tiny plague, which kills all horses, oxen and donkeys that it stings, yet has no power whatever upon the zebras, buffaloes, and wild beasts of the veldt. If the blood serum of these naturally acclimatised and adapted creatures of the same genera, properly applied, could give immunity to South African caravans, millions of money might be saved to the colony.

Let me take permission to tell you that what fills my own heart most with thankfulness, and causes me chiefly to congratulate you on these new days of therapeutic science, is the benign, the blessed discovery, and the now almost universal employment of anæsthetics. If you look into the history of that happy revolution, you will be warned against depreciating fresh ideas by noticing how sadly slow men are to take the hints which Nature gives to them of her very choicest treasures of resource. Why did not anyone act upon what Sir Humphrey Davy had so long before learned and imparted about the properties of nitrous oxide? The key was already there, but not until many years afterwards did an almost casual hand

(that of an American dentist) fit it into the golden door behind which sat waiting an angel of pity, kinder and more powerful than any Arabian fairy suddenly revealed in her divine beauty and bountifulness to any prince or magician of the *Thousand and One Nights*. Is there anything in human history which more sternly teaches that man must win every boon of Nature by his own ceaseless striving than that this simple chemical and physiological secret of chloroform should have lurked so sadly long in its easy formula, undeciphered, through all those waiting generations when pain was an omnipresent tyrant, whom science could not control, and the operating room a torture chamber, dreaded almost as much by the surgeon as by the sufferer? Think of those gallant sailors of Nelson at Trafalgar, whose bleeding stumps in the gloom of the orlop deck, where plunged into hot pitch to stay the hemorrhage! One would almost expect that, pity for such brave men, and for the countless tender women and children who age after age, so hopelessly endured, Telesphorus, the God of Healing, or Nature herself, would have burst the iron law of her impassive silence, and as Helen did in the Odyssey for the sorely-tried Greeks, have poured this nepenthe into the bitter cup of mortal life. I can remember the poetess, Eliza Cook, whom as a boy I knew, when chlorform was still unknown, writing how

> Lips that blench not in the reeling strife
> Turn silent and white from the surgeon's knife.

Not until 1847, although Humphrey Davy has been so near the revelation, did the anæsthetic age commence, giving to your Art a sure control of anguish; to its boldest practice confidence, quiet, and leisure; and to those who have to lie under that knife a sweet and complete oblivion. I have myself known what it is to pass, fearless of the kind steel, into that world of black velvet tranquility, of which your magic drugs now keep the gate; and to awake as good as healed, grateful beyond words for the soft spell of enchanted peace, and the sure and faithful skill.

I have met in this great Palace of Pain gentle and graceful presences which leads me to allude to one more great and happy change among many that has come upon your profession; I mean the education and employment of professional female nurses. A great physician once said in my hearing that the three most sovereign medicines he knew were hot water, fresh air, and good nursing. In your fathers' day, gentlemen, we had no good nursing; we had Mrs. Gamp and Mrs. Betsey Prig, or else heavy-handed and heavy-footed female attendants, very different in mind and manner and influence from the lightly-moving and softly-speaking woman, whose carefulness—intelligent, pitiful, but tranquil, trained, and governed—now smooths every sick pillow, and carries out faithfully and fearlessly the ordinances of the doctor. I do not know whether you, the surgeons and physicians, or we, your patients in *posse* or *esse*, are most to be felicitated upon this admirable revolution in the hospital ward and the sick room. There is no doubt that it was primarily due to the example of that most compassionate and noble-hearted woman, Florence Nightingale, who went at the head of a band of nurses, many of good birth, to the Crimean war, and by demonstrating there and afterwards the immense advantages of skilled and high-class nursing, gave to her age the blessing of this modern system and to her sex a new, a suitable, and a most honorable vocation. You have greeted the name of Miss Nightingale with instant and hearty applause. That generous tribute to her—who in her old age and retirement is even now the center of so much silent national affection—encourages me to remember that I am, after all, poet by nature and lecturer only by accident, and that in those dark hours of the Crimean war I wrote certain verses, which are perhaps brief enough to be on this occasion acceptable. If I am so bold as to revive them from their unprinted oblivion, it is because what they express of admiration and gratitude is applicable in a great degree to every good and dutiful nurse, here and elsewhere, who loyally discharges this new and most womanly function.

> If on this verse of mine
> Those eyes shall ever shine
> Whereto sore-wounded men have looked for life,
> Think not that, for a rhyme,
> Nor yet to suit the time,

I name thy name, best Victress in the strife,
But let it serve to say
That when men kneel to pray
Prayers rise for thee thine ear can never know,
And that thy gentle deed
For Heaven and for our need
Is in all hearts as deep as Love can go!

'Tis good that thy name springs
From two of Earth's fair things,
A stately city, and a sweet-voiced Bird;
'Tis well that, in all homes
Where thy kind story comes,
And brave eyes fill, that pleasant sounds be heard,
Oh Voice! in night of fear
Like Night's birds—sweet to hear
Oh Strong Heart! set like city on a hill.
Ah! Watcher! worn and pale
Dear Florence Ningtingale!
We give thee thanks for thy good work and will!
England is glad of thee,
Christ, for thy Charity
Take thee to joy when heart and hand are still!

This topic tempts me to glance at another closely connected with it, which has always had my earnest interest and support—I mean the movement so excellently instituted and so successfully carried out by my most noble friend the Marchioness of Dufferin and Ava for the supply of English-female doctors for India. In that country, by reason of its peculiar institutions, we are secure from any controversial questions as to the fitness of women for your profession. The customs of the *purdah* absolutely forbid the high-caste Indian ladies to avail themselves of male European skill. I was dining once in Jeypore at the table of Surgeon-Major Hendley, the able and trusted friend of the Maharajah, when a message came that the chief Queen had been taken ill, and begged the advice of the British Hakeem. He went, and on returning told us that, although for seventeen years a familiar visitor of the palace, and the private adviser in many matters of the Rajpoot Prince, he had been obliged to suffer his head to be enveloped in a silken bag, and so equipped had been lead into the Zenana, where he had felt the pulse of her Highness, and had examined her with the stethoscope without seeing an atom more of his patient than a glimpse of one jewelled slipper through the strings of the bag. Here is a medical and surgical field, therefore, wide and unfilled, which might absorb any amount of feminine ability and devotion, if only proper public support be given; and I ardently entreat your countenance and assistance for it in the course of that professional influence to which I well know many among you are destined to rise.

I shall take courage, since your kind attentiveness proves you convinced of the sincerity of my interest in your profession, to touch upon yet another topic, bristling, I know, with dangers from outside observers. I have read, in one of the able disquisitions already quoted, a paragraph dwelling upon Harvey's grand discovery of the circulation of the blood, where, after mentioning that that splendid revelation was the result of experiments performed upon living animals, the talented writer—a great living practitioner—goes on to say: "The whole fabric of modern medicine, the whole difference between the prospect of a sick man today, and his prospects two hundred years ago, rests absolutely on vivisection."

I do not venture, in presence of knowledge and experience so much vaster and riper than mine can be upon such a matter to dispute or qualify that assertion, nor shall I as an individual take on myself to deny to conscientious science, as many persons deny whose motives and arguments I most deeply respect, the right claimed to pursue essential experiments at the cost of the pain and death of innocent creatures. If to give my own life under torture would certainly lead to the saving of very many other lives, I should hate and scorn myself if I had not the will so to die; and as between men and beasts I suppose it is true that we are "more than many sparrows." But my private feeling, founded upon an ever-growing sympathy for the lower animals, an ever-increasing wonder at their gifts and capacities, and an ever-deepening sense of our human responsibility to them, was expressed in a phrase, which I confess was extravagant, used by me to a famous contemporary surgeon, who said: "What, Sir Edwin! May I not vivisect a cat to save the life of a bishop?" and I replied: "Yes, Sir Henry, on condition that you afterwards give the cat a public funeral in Westminister Abbey as a benefactor to the Church and to humanity." Of course that was paradox, but I am persuaded that all of you will understand me, and many will agree with me when I declare that this solemn

right to succor pain by inflicting pain has its best foundation upon an immense reluctance to adopt such a necessity, an anxious economy of anguish in the act; in fine, a feeling not of the heedless experimentalist, but of the priest sacrificing victims for propitiation. I say again that I disclaim any pretension to teach mercy to you whose vocation has mercy for its watchword. I will not share with my age the fruit of patient physiological researches, and then hastily reproach those who have laboriously acquired them for the general good. But as regards my own sentiments, that which chiefly led me to write *The Light of Asia* was the boundless and beautiful tenderness of the Buddhist religion towards the lower animals, whose lives are so mysteriously related to our own, whose lot is so largely at our disposal, and who are to us much as we human beings are to that invisible almighty Power at the feet of which we have sometimes too little cause to wonder if we ask in vain for pity and clemency. Therefore I will be bold enough to-day to put in this humble plea for the dumb martyrs of vivisection, that they may be as few as possible, as mercifully dealt with as possible, and that it be held by the inner *religio Medici* which every true doctor cannot but possess and profess, that the meanest living thing thus sentenced to suffer and to perish for mankind derives from its very doom a certain enhanced regard and a special consideration to which the conscience of him who is a gentleman as well as a doctor will never be insensible.

I am not here, however, as I before remarked, to inculcate reverence for all forms of existence, and tenderness towards all suffering, upon those whose glorious vocation it is to be merciful, sympathetic, and conscientious. Very quickly must the chivalrous aspect of a good doctor's life lay hold of him, as is sufficiently shown by a memorial which I have observed in your chapel. A tablet there records how your fellow student in this medical school gave up his young life in the passionate desire to save that of some obscure and humble patient. To my thinking no ancient cathedral, no chapel of St. George at Windsor, or of Henry VII at Westminster, no shrine or temple or sanctuary anywhere, can contain an epitaph more touching to peruse, more nobly commemorative of the dead, more splendidly honorable to the institution which trained him, and to-day trains, I doubt not, many like him. We have all of us lately read, too, of the heroism displayed by Surgeon-Captain Whitchurch in the fighting at Chitral on the Indian frontier —heroism graciously rewarded by Her Majesty, and such as casts a lustre upon the whole profession.—*Brit. Med. Jour.*

Philadelphia Academy of Surgery.

THE SAMUEL D. GROSS PRIZE.—The second quinquennial prize of one thousand dollars under the will of the late Samuel D. Gross, M. D., will be awarded January 1, 1900.

The conditions annexed by the testator are that the prize "Shall be awarded every five years to the writer of the best original easy, not exceeding one hundred and fifty printed pages, octavo, in length, illustrative of some subject in Surgical Pathology or Surgical Practice, founded upon original investigations, the candidates for the prize to be American citizens.

It is expressly stipulated that the successful competitor, who receives the prize, shall publish his essay in book form, and that be shall deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery.

The essays, which must be written by a single author in the English language, should be sent to Dr. J. Ewing Mears, 1429 Walnut Street, Philadelphia, before January 1, 1900.

Each essay must be distinguished by a motto, and accompanied by a sealed envelope bearing the same motto, and containing the name and address of the writer No envelope will be opened except that which accompanies the successful essay.

The Committee will return the unsuccesful essays if reclaimed by their respective writers, or their agents, within one year.

The Committee reserves the right to make no award if the essays submitted are not considered worthy of the prize.

A "RUSTICUS" PAPER.*

BEECHMIRE, IND., October 30, 1895.

My Dear Mr. Editor:

I herewith enclose you a copy of the letter alluded to from Dr. Ewerson, of Chicago. I know that you are a student of sociology, and that you are interested in human affairs in addition to professional matters, so I feel sure this letter will be at least entertaining, and if you knew Dr. Ewerson as I do your interest would be still further augmented.

CHICAGO, ILL., June 15, 1895.

A. RUSTICUS, M. D., Beechmire, Ind.

My Dear Old Friend: I have contemplated for some time writing you a letter in regard to my personal affairs, but, much as I craved the privilege of opening my heart to you, I felt a hesitancy in doing so, for I thought of the old adage, "Keep your troubles to yourself, others have troubles of their own." But my desire to impart my experience since coming to this city has at length overcome my reluctance to impose upon you my personal affairs, and I am now beginning a letter with this purpose in view. Undoubtedly you will remember the last happy day we spent together, and how bright my prospects looked to both of us; how the future, illumined by the brightest anticipations, seemed to open itself up before us like a beautiful landscape. That these anticipations would not all be realized required no prophetic wisdom to foresee, but that so many of them should prove a bitter disappointment was more than either of us could have expected. That I never so far forgot myself as to expect to attain to distinction among the famous and illustrious names that have illumined the annals of our profession, I am free to declare; but I did hope to win a respectable position by honest and conscientious work in those lines to which my tastes seemed to have fitted me, and I did hope for most delightful associations with the able and high-minded men who fill the front rank of our profession in this great city.

As soon as possible after coming here I presented my name for membership in the Rush Medical Society, and I had already prepared a paper, expecting to be put at once upon the programme, as that had always been the custom with new members in our county society. Months passed, and I was assigned no place, and at last I lost all desire to become a contributor to the proceedings.

I found that the society, instead of being a fraternity bound together by a community of tastes, objects and needs, was divided into factions, each devising means to suppress the others; that there were a number of selfish, designing men who monopolized a large portion of the sessions in reading papers and reporting cases, evidently as a means of advertising themselves with the profession and the public generally; that these men would, whenever possible, insinuate a reporter into the hall, and in that way get themselves and their wonderful cases into the next day's papers. On the other hand, there were a few elderly members who were great sticklers for the Code, and who could smell a reporter as quickly as a terrier can a rat. The result was a perpetual conflict between these two elements, which was by no means agreeable, but, I am happy to be able to say, usually terminated in the reporters being incontinently "fired."

I soon learned, to my astonishment, that one could not place entire reliance upon the case reports presented; that some were greatly exaggerated and others manufactured "out of whole cloth," as the boys say.

I felt an unaccountable aversion to enter into the discussions, for there was something in the atmosphere of the meetings that oppressed and robbed me of the freedom that I have always heretofore enjoyed in medical meetings.

Under these circumstances I soon lost my interest in the society meetings and after awhile ceased to attend them, preferring to pass my time in my study or the laboratory.

You can imagine how great a loss I feel this to be, for the privilege of attending the weekly meetings of a medical society composed of the ablest men in the profession was one of the induce-

*From the *Cincinnati Lancet-Clinic*, Dec. 7, 1895.

ments that led me to seek a city location.

Another thing that caused me a severe disappointment was the reception I met with from those doctors from whom I had received the greatest manifestations of friendship. As soon as it became known that I had located in the city their demeanor toward me suddenly changed. They met me at the medical society and upon the streets with a coolness that contrasted strongly with their former warmth of manner. There were two or three especially, who had been most effusive in their manifestations of friendship, who were the first to show their indifference to me.

So far as I was personally concerned, I did not care for this in the least, for sycophancy as they had shown me never was to my taste; but it did distress and grieve me inexpressibly when it began to dawn upon me that the attentions I had received were not prompted by a spirit of friendship, but with an eye to my consultation business, and that the liberal profession of medicine had with them deteriorated to so mean and mercenary a level.

In every little party of doctors the conversation was sure to turn upon the superior opportunities and enjoyments of country doctors, until it became very irksome to me, and upon one such occasion I retorted that, since they were so well convinced of the superior advantages of country life, I knew of a most excellent location into which I would gladly introduce any one of them. "Now," I said, "do not all speak at once, for there is room there for but one." The arrow evidently hit the mark, for the conversation was changed.

The Code of Ethics evidently exerts a salutary influence in preventing men from attacking the personal character of each other, but it does not seem to extend its beneficence to medical colleges, and here almost everybody is attached in some way to a medical college, either as "professor" understapper, camp-follower or steerer, and from low to high they are all ready to cast opprobrium upon every other school than their own. It is common custom for such to denounce other colleges as "snide institutions," "diploma-mills," and "low-down affairs." One distinguished professor so far forgot the ethics of his profession and the dignity of his position as to declare in a commencement oration that "there was but one medical college in the city" (of course that one was his own), and to explain the fact that they never rejected any one for graduation by the superior teaching ability of their faculty. How any one can reconcile such a thing with common decency, to say nothing of a high ethical conception, is hard to understand.

I soon perceived that the struggle for existence among colleges was as fierce and as bitter as between individuals, and that to be connected with one drew one into the fight without promising him very much of the prize-money; that it arrayed against him every one but those connected with the same school as himself, and even most of those were indifferent to his success or failure. I must say, however, that I greatly enjoy my college work, as the pleasure of imparting knowledge is one of the purest pleasures a generous mind can enjoy.

I soon realized that if I was to possess a practice I must build it up for myself, and I devoted myself more assiduously than ever to business; but I found it an uphill work, for I was not an adept in the methods that I saw in operation around me. I saw men practicing every possible trick to secure business—tricks that would be laughable if it were not so disgusting. The scheming that they resorted to to secure (free) advertising and case reports in the daily papers excited the sneers and contempt of the newspaper men, who look upon all advertising as legitimate, and that the one element of honor in it is to pay for it. Judging from the class of doctors they come in contact with, they conclude that the whole sentiment against medical advertising is downright hypocrisy, and they make their detestation of us felt upon every possible occasion.

Even men of high standing, and occupying dignified positions in the profession, so far forget themselves as to permit their portraits and biographical sketches to be published in the daily papers. This furnishes a justification to others low down in the professional scale, who are only too glad of a pretext to employ every advertising dodge possible.

Then, too, the fees here are so low that

one cannot hope to make a fair living without either slighting his cases or by working day and night and allowing no time for study and scientific pursuits. I am sure my fees at Hopkinsville were twice as high as here within the same area.

But the influences that act most perniciously are the free college dispensaries and hospitals, where thousands of patients are treated every year, a large proportion of whom ought to contribute to the support of the medical profession by paying for the services they receive, and the contract work. Almost every firm that employs a dozen men has its contract physician. The railroad, the street-car company, the fire company, the police force, the electric light plants, and every manufactory employ their physicians and surgeons, and if there is a manufactory that does not employ medical services for its employés it keeps them insured in one of the numerous companies that assume to furnish medical assistance in case of disablement, which services many times extend to the families as well as to the men.

Plenty of medical men can be found not only willing, but eager, for such contract work at a compensation that is ruinous. If the "Family Medical Supply Companies" that are now being projected succeed, and persons can secure medical services by the year for five or ten dollars, what will become of the profession God only knows.

It is inexplicable that men who have ability enough in other matters should be so short-sighted in business affairs. Do they not see that all these methods are death stabs at the business side of their profession, which, as a business, is bad enough now? Do they not see that traumatic surgery is dead, and that the only chance one not a contract surgeon has of securing a case is when some bum runs amuck of a "bung-starter" in some saloon? And do they not see that the family doctor is soon to take his turn on the toboggan-slide if things go on as they are going?

That physicians should cut the ground from under their own business interests by preventive medicine is certainly a noble and most commendable self-sacrifice, but that they should keep up free dispensaries, and by indiscriminate charities and a ruinous contract system remove "the prop that doth sustain the house," is an act of folly that is hard to account for.

In spite of these obstacles, I have slowly and painfully built up a little business that I hope will finally sustain me. I am, as you know, a man of few and simple wants, and can come as near living upon a straw a day as the Dutchman's horse, and I hope in this way to be able to continue in the path that I have laid out for myself. But I realize that it is too bad that members of a profession that contributes as much to the welfare of the race as ours should be reduced to such straits.

A bold and determined stand should be taken in these matters, and, first of all, every college dispensary should be closed, and the hospitals should see to it that only those entitled to it should obtain the benefit of those charities. When it is remembered that every hospital receives annually many thousands of dollars' worth of free medical services it appears but fair that they should see to it that their charities are not abused to the detriment of the profession that does so much for them.

It is said upon good authority that the medical profession does nine-tenths of the charity of the world, but if it only furnished free medical service for every hospital in the land, without thanks or appreciation, it should be entitled to some consideration.

It has been suggested as a remedy for contract practice that as many physicians as possible be enrolled as members of the medical societies; but it is, to me, the most discouraging feature of the case that many of the most conscienceless and unblushing practitioners of unprofessional methods, who resort to all kinds of underhanded methods, from newspaper advertising to "Family Medicine Supply Companies," the greediest medical vampires there are, are among the most active members of the medical societies. In fact, the medical society is but one of the many institutions which they pervert to their own avaricious designs. We cannot expect a stream to rise above its source, and we cannot expect the very men who use the medical societies to degrade medical practice to use the same societies to correct these abuses.

It appears to me that the medical pro-

fession is undergoing an evolution, and that just now it is passing through a transition stage, but what its future may be I am unable to predict. But this I know, that it makes it doubly hard for me here in this great and strange city, for I am an old-fashioned fellow, and cannot easily abandon my settled ideas as to what is dignified and high-toned and adopt the huckstering tricks that I see succeeding around me. I cannot at once abandon the high ideals that I formed in youth by association with yourself and others of the old school, who always held that the practice of medicine, although it has its business side, is something infinitely higher and nobler than any business on earth, and, whether I succeed or fail, I shall do it standing by those principles.

With kindest regards to all my Wood County friends, I am, as ever,

GEO. EWERSON.

I cannot express my feelings upon the receipt of this letter. Here was a man whom I loved as a son being crushed and his high possibilities arrested by conditions that are most befitting the vilest forms of quackery. I wrote to him at once, and exhorted him to stand by his integrity. "For," I said, "it matters nothing to the world or to the profession whether you fail or succeed, whether you live or die; but it matters everything whether or not you are driven from your lofty ideals of professional character. The wave of venality that is now sweeping over the profession will pass, and there will again arise a demand for great and pure men, great because pure and pure because great. *Stand by your integrity.*"

With this sentiment I will close this letter.

Yours fraternally,

A. RUSTICUS.

CURRENT LITERATURE REVIEWED.

IN CHARGE OF SAMUEL M. WILSON, M. D.

Memorandum as to a New Use of Thyroid Fever.[3]

The effect of "thyroid feeding" and of ingestion of extracts of the thyroid gland has thus far attracted the attention of surgeons chiefly in relation to myxœdema. So far as nutrition is concerned, the most obvious effects of this treatment in cases of myxœdema are seen on the cutaneous envelope and its appendages. The dry skin covered with desquamating epidermis becomes soft and supple, the scales disappear, the patches of alopecia or the moth-eaten appearance of the hairy scalp also vanish, and the new growth of hair occurs; the twisted deformed nails grow out again with normal outline and symmetry. These facts naturally attracted the attention of dermatologists who soon began to apply the thyroid treatment to cases of psoriasis xeroderma, lupers, etc. Dr. Jackson seems to think that the dangers outweigh the advantages in such cases. That is a point for the dermatologists to settle.

What concerns my argument is that in more than sixty-five per cent. of such cases an undoubted influence on the activity and nutrition of the skin was produced. This fact suggested a line of treatment in a case, which gave me some anxiety. In March 1894, a young girl dressing in front of a mirror in a train was thrown violently forward by the train suddenly stopping, and received a large crescentic wound in the soft tissues of the cheek. The concavity was upward. I saw her within a few moments, and under anæsthesi cleansed the wound surgically and brought it int position by interrupted sutures. Rapid union entirely by first intention, followed with a linear scar, neither depressed nor elevated.

In October 1894, she was again brought to Philadelphia to see me. The scar had become many times its former size, was elevated, irregular, with a broad, dense base, and was extremely conspicuous and disfiguring. During October, November and December various absorbent ointments, pressure by means of plaster, simple salves and other means of local treatment were employed, but without avail.

In January 1895, she again came to this city, and I put her upon thyroid extract, giving from two to four tablets daily, each tablet containing five grains. All local treatment was abandoned, the scar being covered only with a film of collodion to prevent abrasion or irritation and to keep up gentle pressure.

On several occasions marked elevation of temperature and quickening of pulse occurred, and once the symptoms in this regard were alarming. At all times there was a tendency to irregular and frequent heart action. In the course of a few weeks a perceptible change was noticed and at the end of about six weeks the scar had in almost its entire extent, come down to a level with the surrounding skin and the dense base had disappeared.

There are two possibilities that must preclude any positive conclusions from this single case. The scar may have been on the point of under-

3 J. William White, M. D., *University Medical Magazine*, August 1895.

going spontaneous involution, the collodion may have been an active factor in producing the result. The date of beginning of the atrophy, its subsequent variation with the dose of the thyroid extract, and the previous failure of well-applied pressure make these suppositions improbable. I report the case at any rate for the suggestion it leads to, of the trial of thyroid extract in conditions involving the skin intractable to operative surgery, and either on the border of malignancy like keloid or definitely malignant.

A Case of Acute Articular Rheumatism Complicated By Acute Endocarditis Followed by Gangrene of the Foot in a Child.[2]

Mabel K., aged ten years, a healthy, well nourished child of good family history, was prostrated by an attack of acute inflammatory rheumatism. Examination showed swelling of the left knee, the skin of which was red and angry and the right hip was sore and stiff when moved. Temperature, 102.3°; pulse, 104; restlessness, the patient tossing to and fro and complaining of acute pain, especially in the knee. The following day the hip was the same, but the pain had subsided in the knee and was located in the ankle. Temperature, 102.5°; pulse, 108; tongue coated; bowels slightly constipated. Acute endocarditis ensued during the night. Pain over the cardiac region was complained of; a systolic murmur was heard at the aortic orifice, and the first and second sounds were somewhat muffled. A solution of digitalis, sodium salicylate and iodide of potassium was given, and Rochelle salt to relieve the constipation. Hot applications were applied over the region of the heart. The following day the pain in the cardiac region was greater; the pulse was 128, weak and thready; the murmurs more marked; the heart dulness increased in area; and the temperature, 103.5°. Stimulants in the form of eggs, milk, and brandy were ordered, and the digitalis mixture given every four hours. During the night the cardiac pain diminished, and the patient rested more comfortably, and the ankle, knee and hip seemed much improved.

The next morning a large blister was found covering the toes and extending as far back as the junction of the tarsal and metatarsal bones, excepting on the inner aspect of the foot, where it only reached the base of the great toe. An embolus from the inflamed valves must have lodged in the external plantar artery. Every effort was made to get rid of the embolus and, finding these unsuccessful, poultices were applied. The stimulants were increased, and instead of the digitalis, a mixture of iron, quinine, and strychnine given. Improvement now appearing, amputation was proposed but prevented by a relapse; then demarcation began with rapid separation of the slough. Healthy tissue extended to the bases of the toes and to the second joint of the great toe. The dead portions were clipped away, the toes at their metatarsal articulations. At the present time the foot has healed, excepting a small spot over the second and third toe, and the child is in good physical condition there only remaining some thickening of the aortic valves and a slight limp in walking.

2 A. R. Allen, M. D., *University Medical Magazine*, August 1895.

Chronic Dyspepsia in Children.[4]

Childhood, especially boyhood, is a period when the digestive and assimilative powers are supposed to be at a maximum, when the capacity of taking food—and even that which can hardly be termed food—with impunity, seems to be almost unlimited, or when at most a sharp but transient attack of gastritis or gastro-enteritis with pain, diarrhœa, and vomiting, seems to be the only penalty for even the most apparently outrageous violations of the ordinary laws of feeding. Digestive disturbances must necessarily be more important in their consequences during childhood, the period of development, than in adult life, for in the latter case adequate repair is alone interfered with; in the former, not repair only, but also growth. As all abnormal conditions in childhood are less localized than in adults, the intestines are generally affected along with and in the same way as the stomach, so that, though we speak as a rule of chronic gastric catarrh, it would be more correct to term it chronic gastro-enteritis. There is usually more than one factor of causation present, but I think that not in childhood only, but also in infancy and adult life, we do not lay sufficient stress on the influence of heredity as a very frequent predisposing cause. Even some babies will thrive upon what appears an eminently unsuitable diet, while others fail to digest even the most carefully selected and prepared food. The same differences only explicable by heredity or a congenital defect exist in childhood. A second great cause of dyspepsia in childhood even more potent than in adult life is town life and indoor life. Universal compulsory education, by keeping children together indoors from a very early age during the lightest hours of the day and often in badly ventilated buildings, must largely increase the prevalence of digestive disturbance. Much of the dyspepsia arising from these causes is, of course, a part merely of general debility and anæmia; all the organs perform their functions badly and those of digestion are naturally as much affected as others. The third cause and certainly the great exciting one is improper feeding—irregular meals and odd things between meals, and an excess of carbohydrates, particularly potatoes. Like disorders of the respiratory mucous membrane, it commonly follows the acute specific fevers, particularly measles. The symptoms are both direct and reflex and differ widely from those met with in adults. The appetite is capricious and irregular; often a craving for unsuitable food and a distaste for the more wholesome varieties; hence follows wasting. Anorexia during the period of rapid growth causes more marked loss of flesh than in an adult. The child is usually pale, irritable, listless. The tongue often presents irregular patches of furred and over clean areas; the bowels are either costive or alternately costive and loose. The abdomen is usually distended, pain, referable either to the stomach or bowels, may be complained of, but is seldom severe in chronic cases. Among the reflex symptoms are: headache, especially in the morning; grinding of the teeth; night terrors; syncopal attacks; a dry, hacking cough, and sometimes asthmatic symptoms.

4 J. Walter Carr, M. D., M. R. C. P., Lond., F. R. C. S., Eng. *American Journal of the Medical Sciences*, December, 1895.

In the majority of cases the first point to attend to is regulation of the diet; food should be given at regular intervals, with nothing between meals. Tea, pastry, sweets, etc., should be forbidden, and very little potatoes given. An ordinary meal of fresh meat with abundance of green vegetables about noon, and for the other meals fresh fish, porridge, bread and butter, eggs, fruit and milk in abundance, as a food, may be ordered.

Of course some children have idiosyncrasies, but a child will not refuse wholesome food long enough to starve, simply because it cannot get sweets. A regular daily movement of the bowels is important, and almost every case will require a mild aperient, If there has been constipation one or two grains of calomel will be beneficial at first; otherwise, rhubarb and soda, or gray powder and soda should be given every other night. If either round or thread worms be present, a few doses of santonin may also be given before breakfast for three or four mornings. The child should be kept in the open air as much as possible, the presence of a cough being no hindrance. The uniform distribution of clothing over the body should be arranged.

A combination of seven grains of bicarbonate of soda, twenty minims of tincture of rhubarb, and four minims each of tincture of nux vomica and spirits of chloroform may be given three times daily, half an hour before meals, to a child five years old, and if anæmia be marked, two grains of the citrate of iron and ammonium may be added to this dose.

A Case of Multiple Neuritis Due to a Long Bicycle Ride.[5]

W., aged twenty-six years, accountant, of rather delicate physique, but in good health and of perfectly correct habits, rode fifty miles on a bicycle on August 31st. He usually rode short distances and this was his first long ride. The road was hilly and he got very hot and sweaty going up hills, and felt icy cold coasting down. Beyond the natural fatigue of such a journey, no special effects were felt for a week, when queer sensations were felt in the face but passed off. In a day or two slight numbness began in the hands, and involved the feet also. These symptoms became marked, the grip of the hands grew progressively weaker, moderate ataxia developed, and the faradic response became feeble but not lost The diagnosis of multiple neuritis seemed clear, and no other explanation could be found for the occurrence of the disorder than the long ride. The patient passed from observation, being removed from the city.

Unilateral Ephidrosis of the Face.[6]

Miss Jennie L., twenty-four years old, complained that, while eating, the right side of her face was always bathed in perspiration, while the left was usually dry. On examination I found behind her right ear, in the fossa retro maxillaris, a long, very deep and radiated scar, not parallel with the direction of the salivary duct, which remained after a periparotid abscess, which had been carelessly incised some years before. An attack of typhoid fever had caused swelling of both parotid glands, the left terminating in resolution, and the right being incised discharged pus. The wound healed, leaving a scar in front of the right ear, and diminished sensibility to pain. This region was red and became covered with perspiration, particularly when she began to eat. The loss of sensation gradually diminished, but the tendency to redden and perspire remained.

A few seconds after food, particularly if acid, was placed in the mouth a redness of the right ear began and spread forward and back until it reached the edge of the lower jaw. Over this surface beads of perspiration exuded and rolled down, producing a feeling of warmth. Chewing motions, electric irritation, and even the thought of tart food produced the same phenomena. On examining with Weber's circle the points were felt separately in the neighborhood of the right ear only. The tactile sensation of the circle was more acute on the right than the left cheek. The sensation of pain from a pin was less, but seemed greater behind the right than the left ear. Electro-cutaneous sensibility and electro-muscular contractibility were the same upon both sides of the face. The right angle of the mouth was lowered and the right cheek puffed up, and the temperature of the right cheek higher than that of the left, and became much higher when perspiration took place. I employed atropine, potassium iodide, warm seabaths, and galvanism, given repeatedly at intervals for many weeks. Several months later I met the patient, who stated that her general condition was improved and that the redness and perspiration had never reappeared.

A Case of Tetanus Neonatorum.[7]

On November 24, 1894, a woman presented a baby for treatment. The child was ten days old, born of healthy parents who had had five healthy children. Three years ago she lost a baby, of nineteen months, from inward spasms and had lost a boy a few hours after birth. He had not had convulsions, but could not open his mouth. The woman had been attended by a midwife, and labor was apparently normal. When five days old the child could not open her mouth to take the nipple and milk was forced into her mouth with a spoon, and some times, while being fed, the child would get red in the face and stiffen. The cord came off on the fourth day, leaving the naval red looking but not sore, but a few days later matter began oozing from it.

When seen the jaws were immovable, the forearms flexed, and a day or two later the thumbs were drawn into the palms and the fingers flexed over them. Convulsive motions of the toes and at times of the whole body were seen. The eyelids were closed and the forehead wrinkled, and all of these symptoms were increased by attempts to feed the child. At times the temperature rose to 104.5°.

A solution of bichloride was applied to the umbilicus; the bowels were opened with calomel. A half grain of chloral was given every two hours for two days; then the dose was doubled, and, two days later, two grains of bromide was added to each dose. Whiskey, in five-drop doses, was given every four hours. In fifteen days the child was cured.

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[5] Frederick T. Simpson, M. D., *New York Medical Journal*, Dec. 14, 1895.

[6] A. Schirman, M. D., *New York Medical Journal*, Dec. 14, 1895.

[7] Walter Leslie Carr, M. D. *Archives of Pediatrics*. November, 1895.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

HYGIENE.

Domestic Filtration of Water.

The purity of water at the present day must be judged by its freedom from micro-organisms, and the criteria adopted by hygienists and sanitary authorities should be based upon such considerations. As an ideal pure water is therefore one which is absolutely sterile, it is necessary to consider how much sterility can be readily and safely acquired. At present the householder must rely on his own exertions for affecting this object, since attempts at bacteriological purification made by the larger towns and water supply companies have been shown over and over again to be useless in cases of epidemics, and can only be regarded as precautionary measures which should be rendered as efficient as a first line of defense can be made. The purity ot a domestic supply can be obtained by two different methods, viz., either by sterilizing the water with heat or by using some form of gieser which shall retard the passage of all the micro-organisms present. The apparatus for sterilizing by heat, or "steriliSateurs," as they are called on the Continent, are rapidly becoming more generally known, and the better forms are admirably adapted for the supply of sterile water to hospitals and public institutions, while country houses seem also to be indicated. In dealing with the alternative method we have, however, to insist on the absolute necessity for householders to be on their guard against relying on the efficiency of the majority of household filters when tested from the bacteriological point of view.

Dr. Sims Woodhead and Cartwright Wood a few months ago gave an admirable review of the merits and demerits of the various filters which find favor in this country, and from their systematic examination of these filters have come to the important conclusion that only those of the candle type, of which the Berkefeld and Pasteur Chamberland filters are the best known, fulfill modern conditions of efficiency. Unfortunately hitherto these filters have only been of practical service when adapted to a high pressure of water, since their rate of filtration is so extremely slow under ordinary conditions as to practically negative their use. The rival claims of these two forms of candle filters have been critically discussed by Dr. H. H. Johnston, who, in a thesis for the degree of Doctor of Science of Edinburgh University last year, described a series of experiments to decide this point His general conclusions are worth quoting: "The Pasteur Chamberland filter is the best and the only one on which reliance can be placed for permanently sterilizing water. Its use is therefore recommended for sterilizing drinking water, water used for surgical dressings, and wherever sterilized water is required for any particular purpose."

In France for many years past this form of filter has been used in the French Army, and General Zuremden, in his detailed report, draws attention to the fact that a decrease in the death-rate of the French Army from epidemic disease can be directly traced to the adoption of this method for purifying the drinking supply. Dr. Vallen, in an examination of the typhoid epidemic which occurred in Paris in 1894, also showed that this epidemic was confined to those barracks which were not supplied with Pasteur filters, while those which had these appliances, even with exceptionally bad water, remained unattacked. Within the last few weeks the authorities at Darjeeling, in India, have decided upon filtering the whole of the water supply of that town upon this plan, and this installation will be one of the first in which the Pasteur Chamberland system has been adopted on a large scale.

The drawback which, we have already pointed out, existed in the use of these filters for household purposes, has also been recently removed, as the proprietors have now placed on the market a household filter which works without a high pressure or head of water. In this domestic form, which we have had an opportunity of examining, a battery of three candles is employed, and these are connected by a special India-rubber communicating tube, with a syphon tube to the receptacle below. The three candles being immersed in a vessel charged with the unfiltered water commence to act slowly, and the filtered and sterile water syphons over at the rate of one or two pints per hour. A constant supply of pure drinking water can thus be readily obtained in any house without any greater trouble than that of recharging the reservoir from time to time. From our examination of this new model, we are of the opinion that it fulfills the conditions laid down by the bacteriologists, and is at the present time practically the only form of domestic filter which the profession can recommend to the public.—*The Hospital.*

NEWS AND MISCELLANY.

A California Excursion of Business and Professional Men will leave Chicago and St. Paul Thursday, January 2, and February 6, 1896, in Pullman Tourist Sleeping Cars, over the Chicago, Milwaukee & St. Paul, the Union Pacific and the Southern Pacific Railways, via Omaha and Ogden, for Sacramento, San Francisco, San Jose, Monterey, Los Angles and the Fruit Districts of California. Best of company; lowest possible Tourist rates; Tourist Sleeper—double berth (room for two persons)—from Chicago or St. Paul to San Francisco, $6.00. If you are going as a tourist, or to settle in California, take this train, and you will have the best of company and comfort. Sleeping Car berths should be engaged at once. Send orders for berth, with cash, to F. H. Thorn, City Ticket Agent C., M. & St. P. Ry., 365 Robert street, St. Paul, Minn., or C. N. Souther, City Ticket Agent of C., M. & St. P. Ry., 95 Adams street, Chicago, Ill.

For particulars and circulars apply to nearest Ticket Agent, or address S. Sherin, Excursion Manager, Palmer House, Chicago, Ill.

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ORIGINAL ARTICLES.

PREVENTION OF TUBERCULOSIS.*

E. B. BORLAND, M.D., PITTSBURG.

A disease which is the primary and direct cause of about fourteen per cent. of all deaths, may be properly designated the scourge of the human race. Tuberculosis is the most widely spread of all maladies, and destroys more lives than any three acute epidemic diseases.

In this city, in the year 1894, it was directly responsible for more deaths (11.8 per cent.) than ten acute infections; viz., measles, whooping-cough, diphtheria, smallpox, scarlatina, typhoid fever, cerebro-spinal fever, malaria, erysipelas and septicæmia (11.5 per cent.)

The analysis made by Heitler, of Vienna, of 16,562 autopsies, deaths not due to phthisis, there were found 780 instances of obsolete tubercle (4.7 per cent.) He excluded simple fibroid induration. In 200 autopsies especially examined by Harris, 38.8 per cent. presented evidences of former active tuberculosis. Bouchard claims to have found, in post-mortems in the Paris morgue, some evidences of tubercular lesions in 75 per cent. It would be a moderate estimate to say that at least 25 per cent. of the human race are infected at some period of life. The above records also demonstrate that nature, with or without the aid of art, either walls up or destroys the primary focus of infection, in a large percentage of cases.

That the tubercle bacillus, discovered by Koch in 1882, is the specific cause of tuberculosis, is not questioned by the medical profession at the present day. The diagnosis of tubercular lesions can usually be made by clinical observation. In cases where this is not possible, the microscope or inoculation of lower animals will decide. Some of the acute infections have been very materially reduced in number by preventive measures. Puerperal fever, formerly very prevalent in maternity hospitals, is now, since the introduction of asepsis and antisepsis, almost unknown. Typhoid fever has been reduced in many cities to one-half, and, in a few instances, to one-fourth of the number of cases existing previous to the removing of removable sources of contamination from the water supply. With the knowledge we now possess of the specific cause, pathology, sources of infection, and routes of infection, the three essential factors of infection, the means at our command to prevent infec-

*Read before the Allegheny Co. Medical Society, November 19, 1895.

tion, the measures which may be taken to prevent the further development of latent tubercle, ought and can stamp out, if acted intelligently, one-half the cases of tuberculosis in the next twenty-five years. The question is not now, can it be done, but will it be done.

The last twenty years of the history of medicine may well be designated the period of pathology; the preceding period, symptomology; the near future, not specific but preventive medicine. The effort to discover a specific treatment has been unsuccessful. Sulphurretted hydrogen has sunk into oblivion; tuberculin has been relegated to the detection of latent tubercle in the lower animals; no germicides have been discovered which can be brought in contact with the bacillus without destroying the tissues in which it is planted; the blood serum treatment is still in its probationary stage. Only three agents, one each from the animal, vegetable and mineral kingdoms, can now be ranked as specifics. None of these have been discovered in the last twenty-five years. Recent investigation in search of specific treatment has, however, thrown much light on preventive medicine.

Sources of infection:

1. Air containing dried sputum or secretion from ulcerative lesions.
2. Milk and meat.
3. Vaccine virus.
4. Contact with active tubercular lesions.

We place the most emphasis in this paper on measures for the destruction of the sputum, because we believe that it is the main source of infection. Milk, unboiled, is a common source of infection. Earnst has recently shown that tubercle may be present even where there is no lesion in the mammary gland. The large number of intestinal and mesenteric lesions in children fed on raw milk, is evidence of the frequency of this source of infection. Meat is not, however, a common source on account of its being thoroughly cooked before eating. Vaccine lymph, and contact with active lesions, are not so common as sputum and milk.

Routes of infection:

1. The respiratory tract.
2. The alimentary tract.
3. The skin.

The inflammations of the respiratory tract, from the nose to the air-cell; the traumatism of cough and the fevers, not only have a tendency to reduce vital resistance, but actually leave ulcerations and abrasions of mucous membrane which may and do become original points of infection in many cases. The bacilli may lodge at the point of entrance and multiply, or be carried by lymph or blood vessels to adjacent glands. If the vital resistance be low enough, these glands will ulcerate and the infection be carried to all parts of the system. Infection may reach all parts of the body in the same way, but not so frequently, through the gastro-intestinal mucous membrane and skin. Special care should be taken of children in convalescence after acute disorders. Tubercular infection probably does not take place during acute inflammation, on account of active phagocytosis, due to the large blood supply in the part; but that it does take place frequently in the post-inflammatory lesions, is self-evident to any painstaking observer.

The three essential factors of tubercular infection:

1. Debility.
2. Abrasions.
3. Bacilli.

Debility from any cause, either inherited or acquired, may be the predisposing cause of infection. That there is a special predisposition is at best questionable. A child born of tubercular parents is not necessarily any more susceptible to infection than any other weakling under similar circumstances, if he is removed at once from his infected home. In many persons having the so-called special predisposition, who die from other causes, latent tubercle is found on autopsy. If there is anything in the tuberculin theory, a child born of an infected mother, ought to be less liable, other things being equal, on account of its being almost constantly inoculated during intra-uterine life.

Recent observations go to show that lean people do not have a monopoly of tuberculosis. I have under my observation two tubercular patients weighing 195 and 225 pounds respectively. Both diagnoses were confirmed with the mic-

roscope. One of these patients has lost almost all of the lower half of his right lung during the past month.

The bacilli cannot enter through sound skin or mucous membrane. They cannot go beyond the superficial lesion, if all functions of the body are up to a high degree of physiological activity. Nature fights them back, encapsulates them with connective tissue, or infiltrates the point infected with lime salts and thus crushes them out of existence. The high death rate among stone cutters, grinders, millers and bakers is sufficient evidence of the influence of traumatism. The abrasion may be either macroscopic or microscopic. In many infections and contagions it has been shown that "the susceptibility varies with different individuals, and with the same individual at different times," both factors depending on the vital resistance, abrasions, and the freshness of the infective material.

Measures to prevent infection:

That the sputum daily expectorated, and the discharges from active tubercular lesions, contain in a large percentage of cases, millions of bacilli, has been demonstrated by Nuttell. He found in sputum of a single patient from one and one-half to four and a half billions of bacilli in twenty-four hours. It should be borne in mind that they retain their vitality for many weeks or even months. Koch produced tuberculosis with bacilli from a culture nearly two years old. It should also be born in mind that fresh germs are more virulent, that is to say, more likely to infect, and more difficult to destroy than old ones which have been exposed to air and sunlight for several weeks.

The question now arises how are these bacilli to be prevented from infecting other susceptible individuals. The answer is, destroy them immediately by disinfectants or heat. The objection arises that, under present social conditions, this would be impossible. This may be true at present, but if all physicians were grounded in the faith to a degree warranted by the facts, they could very soon educate their patients so that preventive measures could be carried out, at least in the homes. The physician is the guardian of health in the home. It is not only his province but his positive duty to see that all the measures at his command are used to prevent infection. Hospitals are also largely under the supervision of medical men, and could be made the training schools for teaching the necessary preventive measures. No patient with an ulcerating pulmonary lesion, should be allowed to expectorate any place, either out or in-doors, except in a vessel containing suitable disinfectants. Expectorating on the floors of public conveyances, public buildings and homes, by all persons, sick or well, ought to and can be stopped, either through the influence of a properly moulded public opinion or by appropriate legislation. We have already moderately well-enforced laws on sanitary matters of minor importance in comparison with the prevention of tuberculosis.

Large, well-glazed cuspidors with perpendicular sides, partly filled with a 1-500 corrosive sublimate solution (acid-dulated with tartaric acid), surrounded, if necessary, by screens, and cleaned daily, would protect public buildings and homes. In public conveyances sawdust, in similar vessels, dampened with a 1-250 bichloride solution, would fulfill the indications. Patients, when traveling and out of reach of house cuspidores, should carry a small wide-mouth, glass-stoppered flask, containing a small quantity of the bichloride solution, or a small pasteboard box with folding lid, and partly filled with the bichloride sawdust. The former could be cleaned and the latter burned after a day's use. Handkerchiefs could be made of some cheap material not costing over one-eighth of a cent apiece, and could be burned after using. Patients who expectorate much should rinse out their mouths frequently with warm water, which may be scented with a little oil of wintergreen. This precaution to be attended to before eating for the patient's own protection, and after expectorating for the protection of others as well.

Kissing, by persons suffering from active pulmonary tuberculosis, is at best as filthy and vicious a habit as expectorating on floors and carpets, and ought to be prohibited. Children are by far the most susceptive to infection, and probably many times germs are deposited on their lips, taken into the alimentary

or respiratory tracts, and the little innocents finally die of an avoidable contagion. Kissing is always prohibited in the active stages of specific disease; why not in the more fatal disease, tuberculosis?

Hospitals especially designed for the care of the poor, should be built and maintained by the state as a matter of economy and protection to the public health.

Ventilation is one of the much neglected measures. It has been estimated that each adult individual requires 3,000 cubic feet of fresh air each hour. In a room containing 1,000 cubic feet, the air should be changed three times an hour to prevent the CO_2 from rising about six parts in ten thousand. Probably not one room in ten will meet this requirement. While only a fraction of a cubic foot (0.6) is thrown off by the respiration, an ordinary small illuminating gas burner will throw off six cubic feet an hour. A natural gas-stove without chimney outlets is one of the most pernicious air poisoners ever invented. It renders the air of any moderate sized room unfit to breathe in a few minutes. The old-fashioned fire-place and chimney is the most efficient means of ventilation we have in the average home to-day. Provisions for the entrance of fresh and the escape of foul air should be made near the floors and ceilings of every living room in such a way as to avoid draughts. Permits for the erection of all buildings should specify that ample means be provided for ventilation, and official inspectors should see that the specifications are carried out.

Measures to prevent the development of latent tubercle:

Some of the early suggestive general signs of latent tubercle are, chronic indigestion, the flushed cheek, the clubbed fingers, enlarged lymphatic glands, anæmia and the patient's dislike for meats, especially fats. In the chest, a small localized area (in one lung) of harsh bronchial respiration which persists, jerking inspiration and prolonged expiration, impairment of the percussion note, especially in the apex or base, are early significant signs that call for measures to prevent further invasion. Pure air, diet, mainly of animal foods, and woolen clothing are the hygienic factors of greatest importance.

The high death rate among persons living in-doors, makes pure air a matter of vital concern. Moderately dry, aseptic air, containing as much ozone as possible, is the essential factor. Altitude of itself has probably little influence. True, the lungs expand, unused air cells are ventilated, but at the expense of the life-giving element, oxygen. A well-known physician in this city, who was in the late war, says, that after sleeping on a bed of fence rails in the open air, wet and dry, for several months, his bronchial affection almost disappeared. A diet, mainly of animal food, except pork, is, as a rule, easier digested, and will raise and maintain a patient's tolerance when vegetable foods fail. The stomach at all times should be carefully guarded.

The skin is an important excretory organ. It throws off promptly waste products from germs, and probably some varieties of germs themselves, under circumstances when the other excretory organs are unequal to the task. Woolen clothing assists this excretory function; cotton checks it. Wool is a poor conductor of either heat or cold, and is, therefore, indicated in latent tuberculosis. Nature clothes the lower animals with wool. Man is endowed with intelligence and provided with wool for clothing, yet he frequently persists in wearing woody instead of animal fiber, and as a result he suffers.

In conclusion, we may say that the discoverer of the tubercle bacillus has shown in his life, energy, ceaseless industry, and fearless investigation well worth imitating in preventive medicine. The time has arrived for a mighty struggle of science against the most insidious, insatiable, relentless and ruthless destroyer of the human race, tuberculosis. "The mills of the gods grind slowly, yet they grind exceedingly small." Progress is the law of life, and where the vanguard rest to-day, the rear shall camp to-morrow.

The vigorous prosecution of the fraudulent milk dealers of New York City and the imprisonment of some of them have almost entirely stopped the villany of these baby killers in that city.

ADVANCEMENT OF THE INTERNAL RECTUS BY THE METHOD SUGGESTED BY DR. MELVILLE BLACK.*

J. A. LIPPINCOTT, M. D., PITTSBURG, PA.

On my return in September from my summer holiday, I found, in looking over the journals which had accumulated during my absence, an article in the July number of the *Archives of Ophthalmology* by Dr. Melville Black, of Denver, describing, "A new method of tying sutures in advancement of the ocular muscles." Briefly, the method consists in passing a needle carrying a thread whose two ends are knotted together, into the tissues above and to one side of the cornea, and then slipping the needle between the threads in such a way that when the suture is drawn tight it is firmly attached to the globe by a sort of a slip-knot. A similar suture is attached to the corresponding point below. An opening is then made in the conjunctiva at the upper border of the muscle, and another at the lower border. Through these openings a strabismus hook is passed under the muscle, and, after the horizontal incisions above and below the muscle are extended as far as necessary towards the canthus and towards the cornea, the needles are passed respectively through the upper and lower borders of the muscle and the overlying conjunctiva, and the sutures pulled half way through. The muscle is then divided in front of the sutures and the tendinous attachment dissected from the globe with a pair of scissors. The globe is now rotated by fixation forceps in the desired direction and to the desired extent, while the threads are drawn tight and tied in a surgeon's knot.

The method seemed so simple and satisfactory that I determined to test it, and accordingly I beg now to present a brief report of three cases, each of which it may be said represents a distinct class.

Case 1.—Divergent strabismus of high grade with amblyopia of deviating eye.

Miss J. R. G., of Clarksburg, W. Va., aged twenty-four, consulted me Oct. 11th, 1895. The left eye presented a constant outward squint of about 8 mm. R. E. V'n.=20/xx—, not improved by a glass. L. E.; fingers counted at four inches and only in the outer field. The ophthalmoscope revealed nothing specially abnormal in the right eye, but the left lens was so hazy in its deeper layers that the fundus could not be seen with any satisfaction. The patient was not concerned about her personal appearance. She complained chiefly of extreme discomfort, lachrymation, and redness of the inner side of the eye-ball on exposure to wind, especially in cold weather. The operation above described was performed Oct. 11th, being preceded by tenotomy of the opposing muscle—and the sutures removed ten days later. Two weeks after the operation the eye was found to be almost perfectly straight. The patient was much more comfortable than she had been, and the vision had slightly improved, so that the fingers could be counted at twenty-four inches. The slight divergence remaining, which is due to a lack of power in the internal rectus of the other eye, will probably require moderate operative interference on that side at some future time.

Case 2.—Divergent strabismus following double operation for convergent strabismus.

Edward E., aged twenty-two, Oil City. At the age of six years, after an attack of whooping cough, developed convergent squint for which both eyes were operated upon four years ago.

Stat. Præs. R. E. V'n. 15/xx—, and with + 5—15/xv.
" " L. E. " " "

Patient can fix with either eye, but he uses the left eye by preference, the right deviating outwards about 9 mm. Rotation outwards excessive on both sides. Inward rotation decidedly limited on both sides, especially on the right.

On October 16th, the right eye was operated upon in the same way as Case 1. The internal rectus was found at-

* Read before the Allegheny Co. Med. Soc., Nov. 19th 1895.

tached to the globe behind the equator, which explained its feeble adducting power. In this case the muscle was divided close to the globe, and very little if any of its length sacrificed. The sutures were removed eight days later. Ten days after the operation the axes of the eyes were exactly parallel in so far as lateral movements were concerned, but the patient did not have binocular single vision, as I found by testing him by a method which I devised several years ago.* To account for this lack I discovered that the right eye deviated upwards a little less than 1 mm. This upward deviation is not to be laid at the door of the operation, nor I may say at that of the operator. It is doubtless due to an inherent difference in the rotating effectiveness of the vertically acting muscles of the two eyes, a factor in strabismus most strongly emphasized by Stevens, of New York. The patient is to return in a few months, when, if necessary, a tenotomy, partial or complete, will be probably made on the superior rectus of the right eye.

Case 3.—Obstinate exophoria.

Miss L. K., age about thirty, formerly of Pittsburg, now of Seattle, Washington, first came under my observation ten years ago, complaining of great discomfort and a feeling as if the eyes are crossed in using them. She had been an excessive reader. She had a pair of —3.25 glasses which she used constantly.

Under atropine, myopia of 4.5 D. was found in R. E., and 4 D. in L. E. With these lenses each eye showed nearly normal vision. With these glasses there was a slight exophoria for near vision, but practically none for distance. The patient's general nervous condition was extremely bad.

My notes of the case for the next five years, are so extensive that an abstract of them would take up too much time. Suffice it to say, that in spite of general tonic treatment, in spite of prisms and prismatic exercises, and of other measures, her condition grew progressively worse. In 1890 her exophoria for twenty feet was 12°, and the impulse to single vision was so feeble that, once lateral diplopia was induced by a rotary prism with the base out, the double images were frequently not fused again when the rotary prism was gradually reduced to nothing. At this time (April 4, 1890), I made an advancement of the capsule of the right eye, the result of which was to reduce the exophoria to 5°. In October, 1890, the exophoria was 6°. In May, 1891, I performed Stevens' operation of partial tenotomy of the external rectus, right eye, by which the exophoria was reduced to 3°, but in a month it was 5° again. At this time she decided to go to California with the purpose of remaining a year or more. I advised her to have nothing further done to her eyes until her general health was restored.

Last September she returned with the report that her health was very much better, and that she was now ready to undergo whatever eye treatment I might deem advisable. She had had a great deal of pain in her eyes, especially—indeed almost entirely—in the right. Her discomfort naturally was greatly increased by all attempts at near vision. With her old glasses —3.25, which still suited her better than any others, she had an exophoria for distance, of 12°. The right eye often deviated outwards and sometimes also a little upwards.

Under atropine, R. E. with —4.75=15 / xv+. L. E. with —4.5= —.5 cy, horizontal = 15 / xx. Lateral prisms of doubtful assistance. Vertical prism 1½°, base downward, before right eye at times seems to help distant vision.

On October 23, the operation described above was performed on the left eye, except that the tenotomy of the external rectus was made partial instead of complete. Sutures removed eight days later. It was now found that there was an exophoria for distance of 1°, but an esophoria for near vision of 1°. This is a quite unusual condition, the rule being that the tendency to divergence is greater in near than in distant vision. Two weeks later the exophoria for distance remained the same, but the eyes were absolutely balanced in near vision. The mechanical results of the operation, therefore, are, as in the two preceding cases, eminently satisfactory.

Additional note, December 1, 1895.

November 20th, about four weeks after the operation, there was complete lateral balance for distant and near

*Trans. American Ophthal. Society, 1890.

vision, but the subjective phenomena were not much relieved. The tendency upward of the right eye still persisted, the hyperphoria being rather more than 1°. Now lenses were prescribed of the same strength as the old ones, viz., — 3.25; but, while the left was to be carefully centered, the right was to be decentered upwards sufficiently to secure the effect of 1°, base downward.

To-day the patient reports that her eyes are comfortable and that her sight is better than for years. She states that a severe headache from which she had been suffering, disappeared when she put on her new glasses and has not returned. With these glasses there is perfect balance of the eyes as regards both lateral and vertical movements.

The case is an interesting one as illustrating the importance of the treatment of vertical deviations. But it is no less conclusive as to the necessity of securing a balanced condition of the laterally acting muscles. The immediate source of the unpleasant symptoms was undoubtedly the tendency upwards (hyperphoria) of the right eye, but in the face of the strong disposition to divergence it was manifestly impossible *a priori* to secure normal functioning of the vertical muscles; and this impossibility was confirmed by the failure of all treatment, prismatic and otherwise, directed to these muscles. It was necessary therefore to first establish a condition of equilibrium as regards lateral movement, which was happily accomplished by the operation. The prism, or its equivalent obtained by decentering the right lens upward, "did the rest."

SARCOMA OF THE LOWER END OF THE FEMUR—AMPUTATION AT THE HIP-JOINT.*

R. W. STEWART, M. D., PITTSBURG, PA.

This patient, J. H., aged thirty-five, who has had a hip-joint amputation for sarcoma of the lower third of the femur, presents some points of unusual interest. He was admitted to the Mercy Hospital on May 13, 1895, suffering from what seemed to be a tubercular knee-joint. The patient had been treated by Dr. Sheedy for this disease, and for such was subsequently treated by myself, by rest, tonics, counter-irritation, and injections into the joint of a ten per cent. iodoform emulsion. Under the latter treatment there seemed to be a distinct diminution in the size of the swelling. However, at the end of two months it was evident that the patient had lost ground, and that the knee was worse than when he was admitted to the hospital. I therefore decided to excise the joint. Accordingly, on July 5th, I laid the joint open, and was surprised to find it perfectly normal, and that the whole disease was limited to the lower third of the femur, which was enlarged to twice its normal dimensions by the invasion of the neoplasm. The malignant nature of the disease was at once evident; but as amputation had not been contemplated, nor the patient's consent for such a proceeding obtained, I deferred further operative interference until I could obtain consent to a hip-joint amputation.

In the meantime, a specimen of the tumor removed at the operation was subjected to microscopical examination by Dr. Wasden, who reported it to be a round-celled sarcoma.

On July 9th, assisted by Dr. Buchanan and the house staff, and in the presence of Dr. J. B. Murdoch and others, I amputated at the hip-joint after the method devised by Wyeth. This consists in passing long pins through the thigh at a point above the amputation in such a manner that the Esmarch bandage can be retained in position

* Read before the Allegheny Co. Med. Society, November 19, 1895.

above the pins and the circulation controlled. In this case the operation was bloodless.

In the technique of the operation as devised by Wyeth, the femur is sawn through at the point of the transverse incision of the muscles, but in this case I adopted the method first suggested by Dr. J. B. Murdoch, not to divide the bone, but to use the whole limb as a lever to aid in the avulsion of the head of the femur from the acetabulum. This was accomplished without difficulty. This seems to me to be a distinct advance on Wyeth's method.

The patient suffered but little from shock following the operation, made a good but uneventful recovery, and was discharged from the hospital September 7th, 1895. At the present time, November 19th, there is no evidence of a recurrence of the disease.

THE PHAGOCYTIC THEORY.

The phagocytic theory is to-day admitted by all authors, as regards the mode of defense of the organism against the microbes that invade it. Can the phagocytic function extend to an intoxication? Is there a difference in leucocytic reaction between the inoculated and the normal animal in which a mortal dose of toxine has been injected, and if this difference exists, can the differences of the results of experiment attribute to it the death of the normal animal on the one hand and the survival of the other? Is there, during the period in which an animal undergoes the inoculation of a toxic substance, a leucocytic reaction, which demonstates that the organism is prepared to support a mortal dose of the toxine? The conclusions reached by recent complete and well conducted experiments tend to show that in animals submitted to inoculation by vegetable toxines, by bacterial, such as diphtheria and tetanus by animal, viz., the virus of the cobra di capello, there are manifest leucocytic reactions that vary, accordingly as we consider the animal during the inoculation, after it, or that has received a mortal dose of it. During the period after inoculation, the animal undergoes a progressive hyper-leucocytosis that diminishes gradually. In the second experiment there is more or less reaction, according to the amount of inoculation. There is always a slight hyper-leucocytosis, often continuing at the same figure, without notable diminution, while the animal that receives a fatal amount presents a constant hypo-leucocytosis, which progresses to its termination in death, if this occurs within twenty-four hours after the injection. Hyper-leucocytosis, if progressive and regular, is then a favorable prognosis. Progressive hypo-leucocytosis is unfavorable, and the more or less numerous oscillations of the one or the other are the certain indications of death, but more gradual.—M. Chatenoy.

M. Grasset shows how the new pathogenetic ideas, due to the discovery of micro-organisms, accord with the vitalistic theory. He says: "If microbs are living and active agents, the human organism does not, because of that, abdicate its own vitality, and during microbic attacks it responds by the essentially vital processes, either locally or generally. In disease, the general condition exercises a preponderating importance over the local, and the local condition produced by the microbe is due to the vital functional activity of the organism, and not to microbic life." *N. Y. Med. Times.*

Once when Pasteur was dining with his daughter and her family at her home in Burgundy he took care to dip in a glass of water the cherries that were served for dessert and then to wipe them carefully with his napkin before putting them in his mouth. His fastidiousness amused the people at the table, but the scientist rebuked them for their levity and discoursed at length on the dangers in microbes and animalcula. A few moments later, in a fit of abstraction, he suddenly seized the glass in which he had washed the cherries and drank the water, microbs and all, at a single draught.—*N. Y. World.*

THE MEDICAL AND SURGICAL REPORTER

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PHILADELPHIA, SATURDAY, DECEMBER 28, 1895.

EDITORIAL.

PUBLISHER'S NOTICE.

TO ALL WHOM IT MAY CONCERN:

All controversy between the owners and present publishers of THE MEDICAL AND SURGICAL REPORTER and the assignee of the late publishers and printers of the periodical has been adjusted and settled.

In accordance with the terms of this settlement, the assignee "*relinquishes all claim to subscriptions and other accounts due and unpaid at this date, and has assigned, transferred and set over to the present publishers, all his right, title and interest of whatkind-soever in and to the REPORTER, and requests that all future payments from all sources be made to them or their assigns.*"

The formal agreement, which concludes as above quoted, and which is signed by the BUTLER PUBLISHING COMPANY and by JOHN J. JOYCE, Assignee, marks the settlement of the controversy which has been the primary cause of the delay and irregularity in the appearance of the journal, and likewise the total severance of the REPORTER from all connections which of late have wrought embarrassment to its management and dissatisfaction to its patrons.

Although the REPORTER alone suffers from the controversy, it is but just to concede that the position assumed by Mr. Joyce was taken in good faith, and was in direct line with his duties as assignee.

In order to protect subscribers and others who have paid the assignee moneys due the MEDICAL AND SURGICAL REPORTER and have obtained of him receipt for the same, and to save such from further annoyance on this account, the publishers will allow such payments to all whose names appear on the memoranda furnished by the assignee, and who present receipts signed

by J. J. Joyce, Assignee; and will give full credit for such payments upon the books.

The assignee made no claims upon the business subsequent to the assignment, and received payment only for the amounts due to September 1, 1895. In accordance with the agreement, the assignee has now relinquished all claims whatsoever upon the REPORTER, and may not accept nor receipt for any payments made subsequent to December 12, 1895, the date of final settlement; neither will the REPORTER allow credit for any payments other than those acknowledged on the account rendered by the assignee.

THE MEDICAL AND SURGICAL REPORTER is now entirely freed from embarrassments, and the present management is at liberty to put into operation long-contemplated measures for improvement, long-delayed, despite the most strenuous efforts to secure a settlement.

The improvements contemplated are along the line of development of the idea which THE MEDICAL AND SURGICAL REPORTER has ever represented. The journal is, as its name indicates, a *reporter* of matters medical and surgical for immediate consideration or opportune application by active, progressive practitioners who, dealing directly with practical medicine, seek the best and most recent information for guidance in the prosecution of their work. The REPORTER gathers information from any and all reliable sources, and presents it ready for immediate use to the every-day doctor.

The publishers are confident that the REPORTER, henceforth, will more than vindicate the enviable reputation it has gained during a continued existence of more than forty years, and that, again, it will be found easily foremost among the first-class periodicals devoted to medicine as an applied science.

In this connection, the REPORTER would give expression to its appreciation of the sympathy and loyalty shown by its patrons during the disastrous confusion and restraint incident to the controversy. However it may have suffered in other respects, the REPORTER has materially gained in the number of its subscribing friends. As the subscription list is the readiest measure of the value and strength of a periodical, the REPORTER has undoubtedly emerged from the trial stronger than when put to test. To conserve, foster, develop and perfect the journal is the business of its management, and no legitimate effort will be spared in the enterprise.

On November 6th, 1895, the St. Louis Academy of Medical and Surgical Science was organized. The constitution of the society subscribes to the code of ethics of the American Medical Association. The membership is limited to fifty.

No one can become a member of the Academy unless he possesses a good literary and medical education. As evidence of his literary qualifications and ability as a scientific worker he must deposit with his application, a thesis, a logical specimen with descriptive text, a drawing of a normal or abnormal specimen with text, or some other evidence of his worth. The evidence is passed upon by the committee on credentials. If the evidence is accepted, the ballot is taken. Two negative votes will defeat a candidate.

The following officers were elected for the following year:

President, Geo. W. Cale, Jr., M. D., F. R. M. S., London;

Senior Vice-President, James Moorse Ball, M. D.;

Junior Vice-President, Arthur E. Mink, M. D.;

Secretary, Emory Lanphear, M. D., Ph.D.;

Treasurer, Wellington Adams, A.M., M. D.;

Orator, Thomas O. Summers, A. M., B. S. M. R. C. S., Eng., M. D.;

Curator, George Howard Thompson, A. M., M. D.

SOCIETY REPORTS.

THE ALLEGHENY COUNTY MEDICAL SOCIETY.

November 19th, 1895.

"PREVENTION OF TUBERCULOSIS."

(See page 789.)

DISCUSSION.

DR. F. LE MOYNE: I am most emphatic in my belief that the medical profession has not taken the stand as educators of the public, on this and many other questions, to which it is entitled. The people naturally look to us for knowledge, and information, and instruction in matters pertaining to our department of science. There is no disease upon which the people need more light than upon the one treated of this evening by the reader of the paper. If the property of Pittsburg, or any other community, were exposed, for instance, to the ravages of fire, and the people were without proper fire protection, that is, a good fire department and proper means of reaching and overcoming the dangers, there would be no rest taken until this protection was obtained. The population of every community is exposed to the dangers of contagious diseases by the ignorance and negligence of the people and the authorities. If the particular contagious disease were diphtheria, and the people without adequate protection, there would be a great outcry at once. Yet in the case of tubercular disease, practically speaking, no precautions are taken to protect the general public, and it would be impossible to enforce even the simplest measures which have been advocated by the reader of the paper this evening, and which are believed to be necessary by every intelligent physician. I think that our profession is very culpable in not taking more energetic action in matters of this kind. We know that consumption is contagious, and that hundreds and thousands of people are daily exposed to the contagion, and yet we are taking no active measures to prevent it. I think it is high time we began to take a deeper interest in this matter, and at least make an attempt to give the public some protection. I think the fault lies to a great extent with our profession, and we should rise to meet the occasion.

DR. J. A. BARR: I had a case yesterday which seems to me to be appropriate for presentation before this society this evening. A young man had presented himself for examination for life insurance. The examining doctor said to him very promptly, "I cannot pass you. You have an affection of both lungs that will bar you from passing." Of course this was a revelation to the young man and he called upon another physician for another examination. This doctor also pronounced both lungs affected. Now there was no history of tuberculosis in that young man's family, and the question is, how, or in what manner, did the contagion reach him. It was a peculiar case. A young lady with whom he is now going, gave away the secret. She asked whether she should marry him or not, as he had been paying attention to a young lady who died with consumption. I think this deceased young woman was the source of the infection. He had no knowledge that his lungs were affected until he presented himself for examination for life insurance. I think this case shows very conclusively the contagious nature of consumption.

There is another matter in this connection that I have been thinking about for some time. At this time of the year there are many people with weak lungs, some of whom are undoubtedly consumptive, traveling south and west for the purpose of living in a climate more suitable to their conditions. Now the question arises, whether the railroad cars in general, and the Pullman cars in

particular, are hygienically arranged to accommodate these people without a liability of the tubercular patients infecting the other susceptible passengers. Any of us might be riding in these coaches, and might have some slight throat or lung ulceration, and in that condition would be liable to contract the disease. We all know how the sleeping cars are arranged. How the passengers are penned up in very close quarters, and how impure the air is after the car has been closed up all night. What should be done in these cases to provide for the safety of passengers? The question is one I cannot answer at present.

DR. R. W. STEWART: I am very heartily in sympathy with the reader of the paper as regards the necessity and advisability of preventing the spread of tuberculosis, but I think some of the means of prevention advocated are open to criticism as being impracticable. It is all very well to tell us that a man should expectorate into a bottle, but you cannot make him do so. You may provide hygienic spittoons in public buildings, but you cannot compel everybody to use them. I doubt very much if you could persuade any man to carry around a bottle with him and spit in it while in a street car. As for myself I would not care to sit next to a man who had the accumulated sputum of twelve hours in a bottle containing tubercular matter in a concentrated form. I would most certainly prefer to have him expectorate out of the window. And then it must be taken into consideration that very few tubercular persons care to be known as such, and many are ignorant of the fact themselves. I do not believe that you could compel a man to carry around a spittoon with him, nor to use a low grade handkerchief and spit in it, and then carry it home and burn it.

DR. J. J. GREEN: The subject of preventing the spread of tuberculosis is a very interesting one, and its accomplishment would certainly be very desirable. While it may not at present be classed among the violently contagious diseases, and legislated against, and preventive measures enacted by law, I think the public can and ought to be educated to a better understanding of the contagious nature of tuberculosis. It is not to be supposed that you can control tubercular patients by legislative enactments, in the same manner that you can patients who are suffering from some acute infectious disease. When you make laws to prevent the spread of such contagious diseases as diphtheria, scarlatina, small-pox, etc., the laws have a bearing on a very small percentage of people. It is a fact that many more people are affected with tubercular disease than we have any positive knowledge of, many of whom are entirely unaware of the fact themselves, and it is very hard to convince some people that they have any tubercular trouble at all. Any legislative enactment affecting so large a class of people as this, many of them enjoying apparently good health, would certainly be inoperative to a very great extent, if not entirely so.

Another objection to stringent laws against tubercular subjects is the protracted duration of the disease, the many years of comparative comfort which some tubercular people enjoy before the disease becomes active and fatal.

These facts interfere greatly with legislative interference to control it. My own idea as to the best means of preventing the spread of tubercular disease is to class it as a contagious disease, and endeavor on all occasions to instruct the general public as to its infective character and preventability. Teach the people that although there is a big difference between the acute infectious nature of some diseases and this one, the contagion is there nevertheless. I do not think tubercular subjects should be classed with those affected by rapid infectious disease, as the period of its duration is more than fifty times that of most infectious diseases. It seems to me that effectual legislation is out of the question. I think the best thing to do is to find a climate suitable for the tubercular individual, and send him there, that his life may be prolonged and the disease process checked.

DR. J. H. HOFFMAN: The question of legislation has been brought forward. We may not be able to legislate for the individual, but I think that some legislation could be devised which would be of benefit. I refer to the disinfection of houses in which people have died from

tubercular disease. Some time this very matter will be, or may be, of very serious importance to our patients. There may be a time when some of our patients might wish to move into such a house, where the walls had been fairly plastered with tubercular sputum. At the present time we must take very cautious action in such cases, or we may get into trouble with the landlord. I have tried it. I think this is a matter for both State and municipal control.

There is one other matter in connection with the disease which should not be overlooked. I refer to the condition of the cows which furnish the milk for the community. I think that all dairy cows should be examined every few months by veterinary surgeons having official authority to condemn animals affected with tubercular disease. There are a great many tubercular cows, all over the country, and we are feeding our children with the milk from them. I think we can do a great deal towards preventing the spread of tubercular disease by doing a little missionary work with the people, by instructing them whenever opportunity offers, and explaining to them the infective nature of consumption. Some physicians even do not believe it. I know a physician in this city who does not believe that scarlatina is contagious, and who does not report his cases to the health officials. He allows the children to go to school, even while the epidermis is scaling off their bodies. I believe that much may be accomplished by educating the people up to an appreciation of the contagious nature of tuberculosis.

Dr. T. D. Davis: As I understand Dr. Borland's paper, it is in the line of the resolution adopted at the last executive meeting of this society it is educational. We must educate the people up to an understanding of the nature of tuberculosis, and it seems that we must educate the profession to some extent also, and we must explain the manner by which it can be very largely prevented from spreading. The line of education is the one we must follow. Why, since my entrance into the medical profession, this whole idea of consumption being contagious has been developed. It was always said to be hereditary and not contagious, and the cases of acquired tuberculosis were considered mysterious. The profession itself must advance in knowledge in the future, as it has in the past.

There is one point which has been touched upon, and that is the question of kissing. I believe that the time will come when kissing will be obsolete. The time will come when we will as soon think of kissing a girl on the mouth as we now would of kissing her foot. Many nations do not kiss at all. Of course we have grown into the custom, and it will take some time to grow out of it.

It has been very generally understood for many years that consumption was hereditary, and that the offspring of tubercular marriages would be pretty sure to be tubercular, but this fact did not prevent marriages between persons, one or both of whom were tubercular. But when we have educated the people up to the fact that consumption is not only hereditary, but contagious as well, and that the contagion can very easily be carried to and transferred by the lips, I think the number of these marriages will decrease. A healthy man would not wish to marry a tubercular woman, with the almost certain result of contracting the disease himself; nor would a healthy woman consider for a moment the proposition to marry a tubercular man. If the certainty of diseased offspring will not deter the people from marrying, the great liability of personal infection will, to a very great extent at least. Instances can be given, over and over again, where the tubercular husband has infected the healthy wife, and where the tubercular wife has infected the healthy husband.

Now as to the details how to prevent the spread of tubercular contagion generally: Whether a bottle should be carried to contain the tubercular sputum, or whether some other vessel should receive it, is a matter for the future to decide. The fact remains, however, that the spitting habit is an extensive, almost universal, and a terrible one. Charles Dickens, in his American Notes, calls us a "nation of spitters," and says that we go around spitting everywhere and into everything. Look at our beautiful Carnegie Hall. Everbody who goes there is delighted, and yet they cannot stop using it as a large spittoon. The at-

tendants tell us that the very worst thing they have to contend with is the vast army of spitters. They either spit on the floor, or go behind a door and spit; but spit they must, and do. Look in our street cars, our steam cars, and our streets, and see the spitters on every hand. Do you tell me that this cannot be stopped? It is stopped in other countries, by other nations, and it can be stopped here. It can be legislated against, and public sentiment can be aroused and cultivated. If it is a matter of custom, we must eradicate the custom. We must educate the public, we must educate the young. I know that I am speaking in rather strong terms, but does not the subject demand it? It is stated that twenty-five per cent. of our population is tubercular, and I believe that this spitting habit is largely responsible for this large percentage. We cannot take a too advanced position on this question.

Dr. R. C. Clarke: This discussion has been intensely interesting to me. When tuberculosis invades your household and takes the dearest member of the family away from the home circle in order to prolong the life of the afflicted one, it is apt to appeal very strongly to the other members of the family. When we read in the report of the Board of Health of last year, that there were 455 deaths from tuberculosis, nearly ten per cent. of all deaths from all causes, the question of its prevention becomes a very important one. It is well for us to discuss it, and endeavor to find ways and means of saving the preventable cases. I think that it is high time that the Allegheny County Medical Society, the State Society, and the American Medical Association, should take active measures to solve this question. Last year in France, there was a society organized by some of the French physicians for the prevention of tuberculosis. That society is in existence to-day. Among the methods adopted by that society to accomplish its object may be mentioned the publication of pamphlets, which are distributed without charge, instructing the people how to avoid contagion, and giving specific directions as to the care of the sputum.

I think that the best method of stamping out tuberculosis is by colonization in a suitable climate, at a sufficient altitude. In my own experience, an experience of fifteen years, I have studied this question deeply. I have studied the opinions of some of the very best physicians in America, and yet I fail to find a system of treatment by medicine which is either preventive or curative, and when I compare this with the effects of only one year's residence in Colorado upon my wife, it seems to me that the means are at hand and our duty clear. It may seem phenomenal, but I state the truth when I say that she increased in weight from seventy-eight pounds to nearly one hundred, and these figures speak for themselves of the effect of the climate acting without the aid of medicine; nothing but the pure free air of Colorado. This statement of fact must appeal very strongly to you all. Climate has a powerful curative action in tubercular subjects, and it occurrs to me that it would be cheaper for the county of Allegheny to send indigent tubercular patients to this curative climate than to care for them in our hospitals and other charitable institutions.

A member of this Society, Dr. Gallaher, another young man, and my wife, went to Colorado one year ago for the same purpose, and each one is greatly improved. Dr. Gallaher is nearly well. His disease, as you all know, was probably contracted on his journey to the meeting of the American Medical Association in San Francisco. In a recent letter to me he states that he is almost entirely well. The other young man is a great deal better. With all due respect to medical profession, and with all due respect to medical treatment, I must say that I do not believe much, if anything is accomplished by means of medicine in tuberculosis, except by the serum treatment. I think that it is high time that the profession should recognize that fact. I have hoped to see some powerful society like the American Medical Association take this matter up, investigate it thoroughly, and devise some means for the prevention of the spread of tuberculosis, and for the cure of tubercular subjects.

Dr. J. E. Rigg: I do not think that the residents of this state have any cause to be discouraged in regard to state sanitary legislation. Pennsylvania is a state

which has always acted slowly. While she was one of the first to pass laws with reference to the public health, she has been very slow to take up the question again. But when the question was taken up again, it was with mature deliberation and the result is that we have fairly good health laws. Now I do not mean to say that our law is perfect. It is not. It is, however, the entering wedge; and I expect that more laws will eventually be passed which will accomplish to a great extent the object sought. This is a hard question for the medical profession and we as yet do not know how to handle it. We do not know what laws to ask legislatures to pass. We have no mode to submit to them. We are, however, working along the right lines, and by and by we will know what we want, and when we can go before the legislature with an intelligent law it will no doubt be acted upon.

The question has come up this evening with reference to climate. I have studied this matter with great care. It is proposed to find a suitable climate and then send our tubercular patients there, and when this cannot be done, to erect extensive hospitals where these patients can be kept by themselves. With reference to climate I do not think that it is altitude alone that checks the disease process. It is a combination of circumstances and conditions. You send a patient to Colorado and he improves, he may get apparently well, and yet the bacillus is still there. I wish to refer to one case. A member of our profession went to Colorado some five years ago, on account of tubercular disease. After living there some two years he pronounced himself well, but upon examination he found the bacillus still in his sputum. He suffers no inconvenience from its presence, his health is good, but the bacillus is there. He has good powers of endurance, and to all appearance he is a sound man, but the bacillus is there.

It has been stated that the altitude is the necessary factor. I do not think this stand an entirely correct one. Many people go to Georgia, to Tennessee, to Florida, and to other places in the south and southwest of varying altitude, and many are greatly improved. I do not hink a too high altitude should be selected. I believe an average altitude of between 2,500 and 4,000 feet is the best for the patient, and the most unfavorable for the disease. If you go higher than this your patient is apt to grow worse. Indeed many people seem to improve on the southern plains more than they do in the upper lake or mountain region.

Again, on the Pacific slope there are locations said to be very beneficial to tubercular patients. Some physicians recommend the extreme north. In all of these locations there is a varying humidity in the air, and a wide range of temperature. Who can say positively what is the controlling influence? We should study this question thoroughly on all sides, before we attempt to instruct the public as to their duties, or the legislatures as to the laws they should pass.

I am also of the opinion that tubercular patients should not marry, but it would be very hard to frame a law that would govern these cases. It is a hard task to try to protect people who do not want to be protected, and who refuse to exhibit their usual good sense and good judgment in matters of this kind.

DR. J. M. DUFF: There is one point in the consideration of this matter which I do not think has been touched upon by either the reader of the paper or by the gentlemen who have taken part in the discussion. We cannot accomplish everything by legislation, but self-protection is the first law of nature, and if we can convince the people that their own interests are at stake, and arouse public sentiment, a great deal will have been accomplished.

It has been my privilege to have been a school director almost continuously for the past twenty-four years, and ever since I first became one I have endeavored, as far as possible, to see that there were no kissing games in the schools with which I was connected. I had the children educated up to the fact that kissing was a dangerous past-time and should not be indulged in. We have tried to educate them in regard to expectoration. I go into the schools every few weeks and talk to the children in the different rooms upon these subjects, and so they are educated to a certain extent as to what they should not do

and why they should not do it. I think if our school teachers were thoroughly instructed in these subjects, and if instruction were given daily to children, before the world was a generation older we would not need State legislation.

You, as physicians, know the influence which the child exerts upon the parents at home. If the child learns of these things in the school, and if their importance is impressed upon him, he will surely carry that instruction home, and whenever he sees these important laws violated, he will, certainly in the majority of cases, speak of what he has learned at school. If we cannot hope to induce proper legislation at the present time, we can at least commence to mould future public opinion by educating the child in our public schools.

Dr. R. H. Grube: When we consider that three out of every seven deaths are caused by tuberculosis, that about five adults out of seven to-day have or have had tuberculosis, I think the question discussed to-night should come home to every one of us. When it comes into our home circles, and into the home circle of our friends, it must be of still graver importance to us. There is another aspect to this subject, which has not been considered this evening. The question of bread and butter, the question of surroundings. These factors must enter into our calculations. The younger members of society must be prevented from entering into occupations which will have a tendency to foster tuberculosis, occupations which are manifestly unsuitable. As an example: Five out of every ten printers die of tuberculosis, doubtless caused or aggravated by their close, confined life, from the constant inhalation of dust impregnated with alkali and antimony from the type metal, and the special position which they occupy; all of these causes together condemn five out of every ten printers to death from consumption.

So then we must go back of laws, or make laws governing occupations; we must go back of the moral make-up of society.

As soon as a case of tuberculosis develops, it should be taken under official observation and placed in public institutions for the treatment of this disease, modeled after that of Detweiler at Falkenstein, Germany. Institutions located at a high altitude, free from germs, where they can have the warm sunshine, and where they can have what is more than all, proper exercise and proper alimentation. I think the latter is to a great extent the key to the problem—a proper and sufficient alimentation. If you can feed the patients with a sufficient amount of proper food, and it is assimilated, you need have little fear of tuberculosis. Right in this city you can find hundreds and thousands of young boys and girls of from ten to twenty years of age, with all the marks of tuberculosis, working from ten to fourteen hours a day in dark ill-ventilated rooms. Society must get them out of these surroundings and conditions. I do not think these patients need to be transplanted to the higher altitudes of Colorado. Institutions could be erected on the high hills surrounding Pittsburg, by public beneficence or private charity, and in these institutions a noble work could be carried on.

So far as the particular restrictions and laws spoken of by the reader of the paper this evening are concerned, they strike me as being a trifle absurd, although the end sought is very desirable. We may come to them after a while, but unless we go back of law, back to the moral element of society, we cannot accomplish much. Turn back a hundred years in the history of the Italian city, Naples. They had more stringent laws than any which have been passed in recent times. The tubercular subjects were regarded as lepers and were ostracised from society; they were cut off from all social intercourse; and when a death occurred, the houses were burnt down or the plaster scraped from the walls. For fifty years these laws were in force, and the disease was not reduced one whit. Laws will not accomplish this, education may. Educate the public as to the true nature of this disease and how it may be avoided. If you can educate the public sufficiently, we will have no need for legislation.

Dr. Eugene Wasden: The consensus of opinion as expressed here this evening, seems to be to the effect that we should enact laws to prevent tubercular subjects from marrying, and that we

must educate the people up to a thorough knowledge of this dread disease. Laws can do a great deal. I might make reference to the marine hospital service of the general government. Our quarantines are rigid. No small-pox, no yellow fever, no cholera, can obtain access to our shores. Our quarantine laws are exceedingly rigid. The officials have almost absolute power. But the diseases to which I have referred are very acute and very virulent. Tuberculosis is not, in the vast majority of cases, acute. It is not rapid in its development. It would be hard to legislate it out of existence, but rigidly enforced laws can accomplish a great deal. We must educate the people, it is true, but what better object lesson could there be than suitable laws enforced by the general government acting in conjunction with the State government, with the city government, and with the village government, the officials being national, state and municipal? Certainly this would be educational. Nothing educates the people more than an absolute fiat. If you merely temporize with anything you can accomplish but little. I do not think that we can ever accomplish the desired end by education alone. It would be almost as hard to legislate kissing out of existence as it would be to stop breathing by law. I think one is just as absolutely impossible as the other. Our laws must come well within the bounds of reason and the understanding of to-day, if you wish to see them enforced in a satisfactory manner.

I think one reason why we do not have more legislation on the subject of tuberculosis, and other diseases also, might be mentioned. It is because we have no head under which to work and combine our efforts. I think if we had a national board of health acting in conjunction with state, county and municipal officials, that in twenty-five years, with suitable legislation, the number of tubercular subjects could be reduced one-third, one-half, and perhaps three-quarters. But education of the general public in a desultory manner will not accomplish this. It is not my purpose to anticipate the looked-for action of the American Medical Association in the matter of the National Board of Health, but reference to this seemed to me to be very appropriate to the discussion this evening.

I do not believe, as a bacteriologist, that there will be anything discovered in the near future that will be specific and enable us to suppress tuberculosis, and I fully believe that we must look to hygienic legislation for relief. I do not think that we will accomplish much if we confine our efforts to the education of the general public.

DR. E. B. BORLAND: I am surprised at the first objection which was entered against my paper, in regard to the disposition of tubercular sputum. In my paper I tried to make my position plain, and I think the gentleman misunderstood the intent of the paper in that particular. The fact of the matter is simply this: I first argued that it was important that tubercular sputum should be immediately destroyed. That was the point I made. In addition to this I simply suggested one or two methods for its destruction. The necessity for destruction was the main point, the methods spoken of merely suggestive. I think the methods which I suggested are neither out of reason nor entirely impracticable, and I do think that all the profession will soon realize the stern necessity for these or similar measures.

In regard to the length of time it might be necessary to take these precautions in individual cases, I would say that the average patient, when he becomes a danger and a menace to society, continues so for about two years. I now have reference to the stage of ulceration. In the case of individuals suffering from latent tubercle these precautions are unnecessary. I estimated, when I was preparing my paper, what it would cost for a patient who was spitting up tubercular sputum, to destroy it during a period of one year. At most, it would cost, in the case of one individual, not more than twenty-five dollars and a little trouble, to protect the other members of the family from contagion. Taking two years as the average length of time necessary to take these precautions, from the beginning of the ulceration to the limit, fifty dollars would have to be expended, in addition to a little trouble on the part of the patient and friends, to protect the other members of the family.

Another factor in the cause or spread of tuberculosis which has been mentioned by one of the gentlemen, is the "tubercular house." I understand that in Philadelphia and in New York, already memoranda are kept of such houses.

There was one point which was brought up to-night which I neglected to speak of. I refer to tubercular marriages, and in connection with this will present for your consideration a case which has been under my observation. The gentleman in question is about forty-eight or fifty years of age, and he has had a history of tubercular troubles ever since he was a young man. He has been married three times. His first wife died of consumption. His second wife died of consumption; and at the present time his third wife presents all the signs of tuberculosis which can be discovered without the aid of a microscope. I believe the woman is now suffering from pulmonary tuberculosis. This is certainly a strong argument against tubercular marriages, and also very convincing evidence in support of the theory of direct contagion.

ABSTRACTS.

CHOLERA IN INDIA.*

It is now more than ten years since Robert Koch visited the region in which cholera is notoriously epidemic, whence have spread the terrible epidemics of the disease which have formed an important feature in the medical history of this century. That memorable visit led to the discovery of a spirilum associated with the disease, and the researches which have since been carried out in various parts of the world, and under the most varying conditions, tend to show that this association is so intimate that now-a-days all bacteriologists are willing to acknowledge that the spirilum is the causative agent of the disease. Nevertheless, with strange obtuseness, the Indian medical service as a department of the Government, and indeed as a branch of the British army, has throughout failed to appreciate the value of Koch's discovery, and what is more, has blindly hung on to old and ineffective methods of coping with the disease; in short, has done nothing to gain any practical results from Koch's all-important discovery. Only now, after all these years, thanks to two remarkable men wholly unconnected with it, is that service beginning to realize that there is something to be gained from the bacteriological study of the disease. These two men are Mr. E. H. Hankin, the chemical examiner and bacteriologist to the Government of the North-western Provinces, and Dr. Haffkine. Both before visiting India had made names for themselves as bacteriologists, the one by his remarkable series of observations upon the albumoses of anthrax and the defensive proteids of the body, the other by his observations upon cholera and other diseases of the Institut Pasteur, where he was demonstrator under Metchnikoff and Roux. Hankin's work had been performed in the pathological laboratory of the University of Cambridge. These observers have worked along different lines in attempting to stem the disease; both have achieved remarkable results.

Hankin's work has been very largely directed towards a study of the conditions under which the cholera spirillum exists in water. Of late during the progress of epidemics of the disease in France, Germany, Italy and elsewhere, spirilla have been discovered in the water employed for drinking purposes. This was notably the case during the great epidemic at Hamburg, and indeed when in India Koch himself had discovered the microbes in village tanks. In a large number of cases the spirilla isolated have diverged in several particulars from Koch's classical description,

*Review of current literature of subject by J. G. Adami, M. D., in *Montreal Med. Jour.*, December, 1895.

and as a consequence there has been grave doubt as to whether they were the pathogenic organisms. It has been left to Hankin to study fully the connection between these spirilla and outbreaks of the disease. This he has done in a large number of places, in Lucknow, Etawah, Unao, Cawnpore, in the Gonda District, in and near Shahgunj, and in Allahabad, and, to place his results in as concise a form as possible, he has found that in a large number of localities, situated often under very different climatic and other conditions, vibrios, that is to say microbes, resembling those of cholera are extremely rarely to be found, except in places in which cholera has recently existed. During an epidemic, so far as tested they generally show virulence and are capable in pure culture of killing guinea pigs within relatively a very few hours. They give the indol reaction and possess other characters regarded as typical of the cholera microbe. After the cessation of the epidemic the spirilla gained from the water show a greatly diminished virulence for guinea pigs, and in their limited ability to grow on agar-agar they exhibit a diminution of vitality that may perhaps safely be regarded as an indication of diminished virulence. Such degenerated vibrios show great tendency to die out in ordinary cultures, so that it is difficult to keep them alive for any time in the laboratory. The conclusion from these researches would certainly seem to be that these vibrios are nothing more than the microbe of cholera in a degenerated condition. In this way Hankin throws light upon the divergent results of European bacteriologists and on the existence of races of spirilla.

Though there is reason for thinking that the cholera microbe thus degenerates rapidly in well water, there is no similar reason for thinking that conditions may not exist in which it can maintain its virulence, and indeed Hankin presents an account of one or two such cases in which there had been apparently exaltation of virulence. He mentions, for example, a catch-pit at Daragunj, a hole in the sand on the bank of the Ganges about three feet in diameter, containing stagnant water and fed by a small drain running into it from the village. The water of this on his first visit contained over three million microbes per c.c. The cholera germs isolated from it killed guinea pigs in twenty-four hours. A fortnight later he examined the water that was trickling into it from the village (at that period free from cholera). This contained cholera microbes that killed a guinea pig in four hours. For comparison it may be mentioned that Haffkine's most powerful virus requires six hours to kill these animals.

These observations have led Hankin to proceed further, and starting from the basis that cholera is in the main conveyed from individual to individual, by the contamination of water with fæcal matters, to observe whether disinfection of the water supply might not arrest epidemics. This disinfection is all the more important in that whereas in European towns there are at most two or three sources of water in use, in an Indian town there are usually hundreds of sources. In some places, as at Cawnpore, there may be a well in almost every house. He first employed lime. This was certainly successful in destroying the microbe, but as it frequently killed frogs in the well also the results were not regarded as uniformly satisfactory. Permanganate of potash proved to be much more satisfactory. In a majority of cases when a well, known to be a source of cholera infection and containing cholera microbes was disinfected with permanganate the cholera ceased at once in the areas supplied by that well. The results, however, were not uniform, indeed I believe that I am correct in stating that Mr. Hankin owed a mild attack of cholera from which he suffered, to a premature demonstration of the harmless character of such disinfected water. The use of the permanganate in sufficient quantities to destroy the spirilla has no deleterious effect upon the water, but when this simple method in case after case has arrested the spread of an epidemic among those employing the water, its beneficent working shows that in it Mr. Hankin has devised a remarkable means of prevention of a most dread disease, and so important to the well-being of the Indian peoples do his observations appear to be that he does well to ask for a trial of this method of combating cholera and of destroying it at its source.

The account of the above investigations forms, however, but a small portion of the record of Mr. Hankin's great activity. His annual report for the year 1894 is full of other matters of extreme interest. How widespread are the subjects with which he has to deal will be understood when it is stated that the report treats of his investigations into the nature of the hairs obtained from the mud smears on mango trees which caused so much excitement a few months ago, with medico-legal cases of poisoning, with the bacteriology of aërated waters, examination of filters, of mildew on canvas and of microbes in Indian rivers. He shows, among other things, the inefficiency of "filter-tank" wells. He found, for example, that in one case the water obtained for regimental use from such a filter contained the cholera microbe, while the water passing to it before filtration was free from the germ. Upon inquiry it was found that the sand used for the filters had been taken from an insanitary spot on the banks of the river below the town. He found also that the Macnamara filters in use by certain companies of the East Lancashire regiment appeared to act also as excellent breeding grounds for the microbe and were, in fact, highly infected. Failing the use of weak solutions of permanganate, the only safe method of insuring germ-free water would seem to be by boiling it.

Let me now turn to Dr. Haffkine's results. Starting from the hypothesis that the spirillum is the actual cause of cholera, this young Russian observer had been engaged for a considerable period while at the Institut Pasteur in endeavoring to elaborate a method of "vaccination" against cholera. So far as results upon lower animals, such as guinea pigs, could be relied upon, he had shown that it was possible to gain protection against doses of most highly virulent cholera microbes by previous inoculation with attenuated cultures. But means were wanting to test the value of his laboratory experiments. It is true that the guinea pig will succumb to doses of virulent spirilla, but it is also true that the conditions under which this is brought about are highly unsatisfactory. In order to induce what appears to be an intestinal cholera, the little animals have to be dosed with alkaline solutions and with opium, treatment which alone will often lead to fatal results. If, as has been now frequently done by enthusiastic bacteriologists, by Hankin, Haffkine, Metchnikoff and others, and by sceptics such as Pettenkofer, pure cultures of what appear to be most virulent microbes are taken by the mouth, in only about five per cent. of cases do any results ensue. Haffkine, it is true, further inoculated himself and a large number of his friends with his vaccine, but under the conditions it will be readily understood that the fact that he and his friends remained in good health when subsequently they ingested countless millions of the spirilla was devoid of any absolute value. It was necessary, therefore, that if the method of vaccination was to be tested, this should be on a large scale, and with the object of obtaining the best field for a search into the value of the method, Haffkine, at his own cost and responsibility, went to India. But once in India his trouble had only begun. A free population, the various influences and currents of opinion intervening, religious feelings and conditions, and the mixture of confidence and distrust on the part of individuals and committees, are conditions not entirely favorable for an experimenter having the aims of Dr. Haffkine.

He started with the hope that he might select a village or a small town suffering regularly from a known amount of cholera. By inoculating, before the cholera season, a half or a large portion of the village, he had hoped that a field would be prepared for observing the effects of his operation. But such village did not present itself. It was only after a long period—more than a year—of almost ineffectual work that the right method showed itself. It was not necessary to inoculate half a country, or a city, or even half a village; in the endemic area each house can comprise within its walls an experimental group, and by inoculating some, and not inoculating other, members of the households who otherwise were under similar conditions of food, water, soil. social customs, etc., reliable statistics could be obtained as to the efficacy of the treatment. The method at first sight seems

peculiarly cold-blooded. Upon further consideration, however, there is not a little to be said in its favor. The inoculations were harmless and they were experimental; those not inoculated were, it may be presumed, those who did not ask to be.

And now as to the results. By recording carefully the statistics of those treated and untreated in such households, in regiments, upon tea plantations and in gaols, and comparing the mortality in supervening cholera epidemics among those inoculated and those untreated, the following are some of the results: In a total of 42,445 inoculations, not a single instance of mishap or injury to health resulted. In Calcutta, 1,860 inoculations were performed by the Health Department of the municipality. Cholera occurred in thirty-six houses in which a certain proportion of the 516 inmates had been inoculated. Among the uninoculated, 13.47 per cent. were attacked by cholera and 11.6 per cent. died. Among the inhabitants partially protected by the first inoculation, only 2.2 per cent. were attacked and died. Among those who had undergone the complete second inoculation there were no cases and no deaths.

The Calcutta Municipality was encouraged to carry on the experiment by the results obtained in a localized outbreak of cholera around certain tanks. Of the 200 persons living in the infected group of houses 116 submitted to the operation. Among these 116 no further cases occurred; among the eighty-four not inoculated ten were attacked and seven died.

In the Gaya gaol again, both classes of prisoners, inoculated and non-inoculated, appear to have been equally exposed to infection. While Surgeon-Major Macrae's statistics are not easy to grasp at first sight, they show the same results, namely, that after the full period of inoculation by the first and second vaccine, no deaths occurred among the inoculated, whereas deaths continued to occur with fair frequency among the non-inoculated. Or, taking the whole statistics from the period of the first vaccination of the prisoners, the mortality among those untreated was twice that among the treated.

Thus, after nearly three years' arduous and self-imposed labor, carried out at his own cost, Dr. Haffkine has brought to a successful issue one of the most remarkable experiments ever undertaken by a man of science. He has lived his life before the Indian doctors during all this period, he has completely won their confidence and esteem. The prejudices, apprehensions and unnatural objections to what seemed a dangerous operation, he has gently and calmly overcome. The evidence he brings forward is verified by independent medical experts. He came to India a healthy man, he leaves it weak and broken down, but he leaves it, as the *Times* in a most interesting resumé of his works remarks, as one stamped as no ordinary man, and perhaps destined to rank as the Jenner of India.

Controversy may continue with regard to the precise value of inoculation as a prophylactic against cholera, but there can be no controversy as to the disinterestedness of purpose and the high scientific aim which has led Dr. Haffkine to study how to protect, not only our soldiers in India and the Indian people, but also the people of civilized Europe and America from this terrible disease. There can again be no controversy as to the wisdom displayed by the government of the North-west Provinces of India in taking the bold step of establishing a bacteriological laboratory, and appointing to direct it the brightest and most resourceful of young English bacteriologists in the person of Mr. E. H. Hankin. Now that he has accomplished so much for the good of the Indian peoples, it is to be hoped that he will be permitted to devote all his attention to bacteriology pure and simple, apart from medico-legal analyses and the multifarious duties appertaining to the post of chemical examiner.

Sleeping Rooms.

Oil stoves and gas stoves should never be kept burning in a sleeping room, for they are burned in the open air of the room, and having no connection with a chimney-flue, throw the poisonous carbonic oxide of combustion into the air of the apartment and make it unfit for respiration.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

Fate of a Famous Health Resort.

Forty years ago Mentone was a healthy village in France, where lived peasantry happy in their farms and their superb physical state, conditioned by the climate. It was discovered that the region was a most healing climate for consumptives, and it became the Mecca for the unfortunates of Europe so stricken. The inhabitants abandoned their farms to wait upon the strangers. The strong, healthy women forsook their dairies and became the washerwomen of the consumptives' clothes. No precautions were taken; the disease was not then understood as now, the theory of the tubercle baccillus not having been discovered. The place to-day is bacillus ridden, a pesthole, death itself. The hitherto strong inhabitants are emaciated, a coughing, bleeding people, filled with the germs of consumption. The soil and the air are both contaminated with them. It is no longer a resort. The same fate, it is believed, awaits many other similar health resorts unless active means are taken to destroy all germs. This will be a most difficult task, because consumptives themselves, as a rule, are not thoughtful of the danger they spread, or of the rights of others. They should bear in mind that if all others had been careful they, too, might have escaped.—*The Journal of Hygiene.*

Philadelphia newspapers report that a regular epidemic of "benzin booze" has broken out among the gamins of that city, even gasolin street-lamps being laid under contribution to supply these urchins with the stimulant craved. This discovery of the intoxicating properties of benzin is said to have been accidental, so far as these boys are concerned, one of them having had his first "jag" after hiding in a recently emptied barrel. This tale corroborates Dr. Rosenthal's report of the employment of benzin as an intoxicating inhalant by individuals of the laboring classes in Germany (W. D., 1894, p. 445). Henceforth, it would seem, it will no longer be necessary to spell benzin with quotation marks.

In this connection reference may be made to the most unique of "drunks" ever recorded. It is the case of a certain railroad engineer of Toledo, O., who, according to the newspapers, periodically goes out on a regular "candy drunk," when for the time he has to be excused from work. He contracted the habit when young and it has grown steadily upon him until no old toper craves his drink more than does this railroader his candy. It has no serious lasting effect upon him, as there is not an engineer on the road with a keener eye or steadier nerve.—*Western Druggist.*

The Convict Evil.

The death rate among the convicts from various counties in the State, who are confined in the Coalburg mine prison, near Birmingham, Ala., was a few weeks since investigated by County Health Officer Dr. Thomas D. Parke, by order of the County Committee of Health. The report was sent to Governor Oates and the Board of Convict Inspectors. Coalburg prison mines are operated by the Sloss Iron and Steel Company, who receive the short-time convicts to work in the mines at so much per head, paid the counties sending them. The State or long-term convicts are sent to the mine prison at Pratt mines, to the penitentiary walls at Wetumpka, or the convict farm at Speigners. The report is a voluminous document, the main data elicited being that the death rate at Coalburg for each of the past two years was ninety in each 1,000, and that the principal cause of the death rate is tuberculosis, superinduced by insufficient sunlight and ventilation. The death rate among the able-bodied men who were constant workers in the mine—men in the prime of life—was sixty four in the 1,000. This death rate is frightful, says the report, and it adds: "The question may be asked whether a sovereign State can afford to send her citizens for slight offenses to a prison where, in the nature of things, a large number are condemned to die." The report condemns the system rather than the Sloss Company, which, the report says, has been found always ready to accept and act on suggestions. It condemns the practice of paying sheriffs thirty cents a day to feed each county jail prisoner and giving a ten-days' convict as high as two hundred days in the mines for costs of court when not able to pay them. The pay to feed prisoners, it claims, makes the sheriff's principal income, and these officers give prisoners in the county jails cornbread and fat meat the year round and make their profit, thus preparing the prisoners for disease upon entrance into the mines. The report has caused a local sensation, and will create interest throughout the State, suggesting legislative action as a remedy for the evil disclosed.—*Nashville American.*

Disinfection of Vaults and Cesspools.

Dr. Vincent recently reported to the Academy of Sciences, at Paris, the results of experiments for the purpose of determining the best disinfectant for rendering fæcal matters innocuous. He required of each disinfectant that it should kill all pathogenic microbes, including the bacillus coli communis and the bacteria of putrefaction. His experiments showed that the best of all disinfecting agents for the destruction of fæcal matters in vaults and cesspools is sulphate of copper employed in connection with one per cent. of sulphuric acid. The quantity of sulphate of copper required was one pound for every three cubic feet of fæcal matter mixed with urine. Half this quantity was found sufficient to destroy the cholera bacillus. It was found necessary that the disinfectant should remain in contact with the infectious material for at least twelve hours.—*Modern Medicine.*